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HAZARDOUS MINE OPENING PROJECT; PHASE 25, PROJECT 28

DSL-AMRB 90-022

Austin and Marysville Mining Districts
Lewis and Clark County, Montana

January 1992



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Chen  Northern, Inc.
Helena, Montana

FINAL REPORT

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DSL-AMRB 90-022**

**Austin and Marysville Mining Districts,
Lewis and Clark County**



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FINAL REPORT

**HAZARDOUS MINE OPENING PROJECT; PHASE 25, PROJECT 28
DSL-AMRB 90-022**

**Austin and Marysville Mining Districts,
Lewis and Clark County**

Prepared for:

Department of State Lands
Abandoned Mine Bureau

Prepared by:

Chen-Northern, Inc.
1610 B Street
Helena, MT 59604

January 1992

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1.0 INTRODUCTION

Hard rock mining has taken place in Montana since 1862 and was essentially unregulated from a reclamation standpoint for over one hundred years. This resulted in thousands of unsecured shafts and adits in mining districts across the state. The hazards associated with these mine openings are many, ranging from bad air to falling rock and cave-ins. The purpose of this project was to abate some of these hazards located in the Austin and Marysville Mining Districts. This project was one of a continuing series of hazardous mine opening closure projects completed by the Montana Abandoned Mine Reclamation Bureau (AMRB).

1.1 SITE DESCRIPTION

The sites included in Hazardous Mine Opening Project; Phase 25, Project 28 (HMO Project 28) are located in or near residential or recreational areas, within historic areas, or close to public roads. All mine openings included in this project are considered hazardous to public safety. The shafts involved were deep enough to prevent unaided escape upon entry. Adits were accessible to the curious, exposing dangerous underground workings and unknown hazards.

1.2 SITE LOCATIONS

This project included 114 openings at 56 sites located in the Austin and Marysville mining districts of Lewis and Clark County, Montana. For the purposes of this report, one site located in the Scratchgravel District, is included in the cost summaries of the Austin District. Legal descriptions of all sites constructed are listed in Table 1-1. Site locations are shown on the vicinity and hazard maps contained in Appendix A.

1.3 PROJECT OBJECTIVES

HMO Project 28 was designed and executed with the intent of eliminating accidental or unauthorized entry to mine openings that exposed unknown hazards at a number of abandoned hard rock mines in Lewis and Clark County, Montana. Sites were selected from the non-coal database inventory. Backfilling was the preferred reclamation option for

closing hazardous adits and shafts. Alternative methods such as steel grates, culverts, and fencing were also utilized, at the claimant's request to preserve access to specific mine openings.

TABLE 1-1
LEWIS & CLARK COUNTY SITE LOCATIONS
HMO PROJECT 28

PA #	MINING DISTRICT	SITE NAME	LEGAL DESCRIPTION
-----	-----	-----	-----
25-221	Austin	Dreadnaught/Paymastr	T11N R05W S34 NE NW
25-033	Austin	East NW Section 5	T10N R05W S05 E NW
25-220	Austin	Jeff Davis Gulch	T11N R05W S27 SE SW
25-185	Austin	King Tut	T11N R05W S33 SE SE
25-380	Austin	Limestone Ridge	T11N R05W S05 SW NE
25-379	Austin	Little Valley	T11N R05W S05 NE NE
25-222	Austin	NE SE Section 16	T11N R05W S16 NE SE
25-216	Austin	SE NE Section 3	T10N R05W S03 SE NE
25-219	Austin	SE SW Section 27	T11N R05W S27 SE SW
25-224	Austin	Sitzer Gulch	T11N R05W S03, S04 SE
25-215	Austin	Spring Gulch	T11N R05W S36 SW SW
25-184	Marysville	Albion	T11N R06W S10 SW NW
25-060	Marysville	Allegheny	T11N R06W S02 NW SW
25-062	Marysville	Ample/Hickey	T11N R06W S03 E NE
25-116	Marysville	Big Ox	T12N R06W S13 NE SE
25-127	Marysville	Black Douglas	T11N R06W S10 SE NW
25-120	Marysville	Black Hawk/Janette	T11N R06W S04 E SE
25-129	Marysville	Devon/Sterling	T11N R06W S09 SE NE
25-076	Marysville	Drumlummon	T11N R06W S01 NW
25-118	Marysville	E.F.L.	T12N R06W S33 NW NE
25-077	Marysville	Earthquake	T11N R06W S05 SW NE
25-078	Marysville	Emma Miller	T11N R06W S02 NE SW
25-015	Marysville	Empire	T12N R06W S33 NE NE
25-173	Marysville	Erie	T12N R06W S27 NW SE
25-134	Marysville	Fraction	T12N R06W S36 SE SW
25-132	Marysville	Frame	T12N R06W S36 SE NE
25-126	Marysville	Genesee	T11N R06W S10 SW NW
25-130	Marysville	Griff	T11N R06W S10 NW NW
25-125	Marysville	Kenawa	T11N R06W S10 SW NW
25-182	Marysville	Larson	T11N R06W S16 NE NE
25-315	Marysville	Last Hope	T12N R06W S36 NW SE
25-177	Marysville	Little Giant	T12N R06W S34 NW NW
25-170	Marysville	NW NE Section 27	T12N R06W S27 NW NE
25-312	Marysville	NW NW Section 11	T12N R06W S11 NW NW
25-138	Marysville	Nine-Hour	T11N R06W S01 NE NW
25-080	Marysville	North Star	T12N R06W S36 NW SE
25-318	Marysville	Old Empire	T12N R06W S34 SW NW
25-350	Marysville	Point Hope	T11N R06W S02 SE NE
25-135	Marysville	Robert Emmet	T11N R06W S01 NW
25-121	Marysville	Rose Bud	T11N R06W S04 NE SE
25-311	Marysville	SE NE Section 10	T12N R06W S10 SE NE
25-341	Marysville	SE NE Section 27	T12N R06W S27 SE NE
25-310	Marysville	SE SE Section 29	T12N R06W S29 SE SE
25-178	Marysville	SE SW Section 33	T12N R06W S33 SE SW
25-133	Marysville	SE SW Section 36	T12N R06W S36 SE SW
25-119	Marysville	SW NE Section 31	T12N R05W S31 SW NE
25-313	Marysville	SW NW Section 10	T12N R06W S10 SW NW
25-114	Marysville	SW SW Section 30	T12N R06W S30 SW SW
25-086	Marysville	Shannon	T11N R06W S03 NW SE
25-128	Marysville	Snow Bird	T11N R06W S10 NW SW

TABLE 1-1
LEWIS & CLARK COUNTY SITE LOCATIONS
HMO PROJECT 28

PA # -----	MINING DISTRICT -----	SITE NAME -----	LEGAL DESCRIPTION -----
25-181	Marysville	Strawberry	T11N R05W S18 S
25-166	Marysville	Tyson	T12N R06W S36 NW NW
25-082	Marysville	Vestal	T11N R06W S09 SW NE
25-174	Marysville	Whipperwill	T12N R06W S34 NW NW
25-340	Marysville	Z-G #18	T12N R06W S22 NW SE
25-378	Scratchgravel	Scratch Gravel/Porcupine	T10N R04W S03 SW NW

1.4 MINING DISTRICT HISTORY

AUSTIN - The mineral deposits in the Austin area, located northwest of Helena, are generally small and have received relatively little attention. The original settlement, Greenhorn Gulch, was a placer camp. The area is drained by Seven-Mile Creek, along which placers have been worked for a distance of twelve stream miles. Presumably the gold in the creek has been derived from lode deposits found in the rugged mountainous region surrounding the town. Total production between 1883 and 1935 has been estimated at \$1.5 million in silver, copper, lead, and gold. The ore was valuable for fluxing due to its relatively high concentration of iron. Production records for most mines in the district are unavailable. Most workings were adit and shafts associated with small prospects. Large lode or placer deposits were neither located nor developed in the district.

MARYSVILLE - Marysville lies north and west of Helena and was one of the bonanza gold districts of the western United States during the late 1800's. Thomas Cruse, one of the pioneers of the District, came to Montana in 1868 from California and drifted to Silver Creek. There he operated a placer claim with William Brown. Cruse, curious as to the source of the gold in his pan, began exploring and prospecting on what was later known as Marysville Mountain. In 1876 he cut the vein below the discovery shaft of what was to become the Drumlummon Mine. Cruse named his mine the Drumlummon after the parish in Ireland where he was born.

The U.S. Bureau of Mines has credited this area with mineral production of about \$10.4 million; however, much of the mining from the richest mine in the area, the Drumlummon, was accomplished prior to 1890 before production records were maintained by the Federal agency. Production in the Marysville District has been estimated at \$30 million in gold and silver, with about half of the early production from the Drumlummon. As with most other gold districts, initial production was from placer deposits. As the placers were worked upstream, the lodes were discovered and mined. Silver Creek, the main drainage from Marysville, has been extensively placered. Evidence of both hand operations and dredge mining extends for several miles downstream from the town of Marysville. The district and the mining camp was called Marysville, in honor of Mrs. Mary Ralston, a pioneer in the area.

Other mines in the district include the Big Ox, Empire, Bald Butte, Strawberry, and Earthquake which were operated until 1948. Total production from these mines was in excess of 64,000 ounces of gold, 82,000 ounces of silver, 64 tons of copper, 800 tons of lead, and 30 tons of zinc.

2.0 PROJECT PLANNING AND CONSTRUCTION

The following people/firms have contributed to the coordination, design, execution, and inspection of HMO Project 28:

♦	PROJECT COORDINATION & DESIGN	Chen-Northern, Inc. 1610 B Street P.O. Box 4699 Helena, MT 59604
♦	ENGINEERING PLAN PREPARATION	Chen-Northern, Inc. 1610 B Street P.O. Box 4699 Helena, MT 59604
♦	CONTRACTOR	Scott Construction, Inc. P.O. Box 777 East Helena, MT 59635
♦	QUALITY CONTROL INSPECTION	Chen-Northern, Inc. Joe Murphy, Project Inspector
♦	AMRB PROJECT MANAGER	Ed Gensler

3.0 CHRONOLOGICAL LISTING OF EVENTS

HMO Project 28 was constructed during the summer of 1991. The contractor performed all construction activities according to contract specifications and within the contract period. The following section describes the sequence of events and milestones for the project.

3.1 PRE-BID CONFERENCE

A pre-bid conference was held on October 29, 1990 at the Montana Department of State Lands in Helena. A slide show was presented to acquaint prospective bidders with site conditions since it was not practical for most contractors to visit each site. The slide presentation included a narrative describing site access and construction considerations for specified reclamation.

3.2 PROJECT BIDS

Montana Department of State Lands personnel publicly opened bids for HMO Project 28 (DSL-AMRB: 90-022) on November 8, 1990. The three lowest bids are presented below. Complete bid tabulation results are presented as Appendix B.

Scott Construction, Inc., East Helena, MT	\$ 88,349.50
Swan and Sons Construction, Anaconda, MT	\$ 98,550.00
Sharbono Construction, Helena, MT	\$ 98,700.00

3.3 PROJECT CHRONOLOGY

HMO Project 28 was completed during the summer of 1991 within the contract period. The following chronology presents the sequence of events that led to completion of the project.

Contractor:	Scott Construction, Inc.
Notice of Award:	November 26, 1990
Notice to Proceed:	May 29, 1991
Construction Start-up:	May 29, 1991
Substantial Completion:	September 10, 1991
Final Acceptance:	October 24, 1991

4.0 PROJECT CONSTRUCTION

4.1 DESCRIPTION OF PROJECT PLAN

HMO Project 28 was designed and implemented with the intent of eliminating accidental or unauthorized entry to hazardous mine openings. These openings exposed unknown hazards at a number of abandoned hard rock mines in Lewis and Clark County.

Backfill was recommended for all mine openings to permanently eliminate the hazards associated with abandoned adit and shaft openings. However, many landowners and/or claimants would not allow closure by backfill, so closure methods allowing access to the mine openings (i.e. steel grates, culverts, cable nets or adit doors) or farm type 5-wire fences were installed. These alternative closure methods prevent accidental entry but are semi-permanent in nature and are subject to vandalism.

Steel grate systems used as shaft closures were fabricated by an independent contractor. The grates were available for transport to Project 28 sites at the start of the project. Landowners whose hazardous openings were closed with semi-permanent, locking closures were provided with keys to all locks installed on their property. A key receipt form was sent to each claimant to sign and return. Receipts have not been received from all claimants as of this report date. Additional key receipt forms will be forwarded to DSL for inclusion in project files. Table 4-1 presents the status of the key receipts and the signed forms are included as Appendix D.

4.2 CONTRACTOR'S OPERATION

The project was performed utilizing a crew of two to five men. Lee Scott and Gary Martinsen were field superintendents during the project. The construction crew consisted of Dean Tabbert, Joe Crawford, Andy Phillips, and Chris Nachtesheim.

TABLE 4-1
KEY RECEIPT ACKNOWLEDGEMENT STATUS
HMO PROJECT 28

MINING DISTRICT	SITE NAME	NO.	CLOSURE	LANDOWNER	KEY RECEIPTS
Austin	E NW Sec. 5	8-7	Grate	Kenneth Russell	No
Austin	Jeff Davis SE SW Sec. 27	7-16 7-17	Grate Grate	American Mining c/o Merlin Bingham	Yes
Austin	Sitzer Gulch	9-22	Grate	Earl Wohlfrom	No
Austin	Scratch Gravel	11-12	Grate	Art Fredriksen	No
Marysville	Ample Hickey Drumlummon Drumlummon Last Hope Point Hope	8-3 10-19 10-20 41-51 35-34	Grate Grate Grate Culvert Culvert	St. Louis Drumlummon Co. c/o Frank Duval	Yes
Marysville	Big Ox	5-11 5-12 5-13 5-14	Culvert Grate Cable Net Culvert	Charles McDonald	Yes
Marysville	E.F.L. Empire	39-35 12-38 12-43	Culvert Adit Gate Adit Gate	Minn-Dak Marketing c/o Dennis Sobolik	Yes
Marysville	Frame	24-63 24-64	Culvert Culvert	Thomas Cruse Mining Co. c/o Martin Sadd	No
Marysville	Kenawa Snowbird	18-49 34-83	Grate Grate	Chevron Minerals Corp. c/o John Paul	Yes
Marysville	NW NE Sec. 27 SE NE Sec. 27 Z-G #18	22-53 22-56 47-73 48-90	Adit Gate Culvert Culvert Culvert	Zigmunt Smigaj	Yes
Marysville	Rob. Emmet	25-64 25-65	Culvert Culvert	Eric Nelson	Yes
Marysville	SE NE Sec. 10	45-72	Grate	Ray Grady	Yes
Marysville	SW SW Sec. 30	43-81	Cable Net	Goldsil Mining c/o Merlin Bingham	Yes

The following list of equipment was used by Scott Construction, Inc. to complete HMO Project 28:

- Caterpillar 931 Track Loader
- Caterpillar D-7 Dozer
- 3/4 Ton Four Wheel Drive Tool Truck
- 1 Ton Four Wheel Drive Flat Bed Truck
- 2 1/2 Ton Flat Bed Truck
- 1/3 Yard Portable Concrete Trailer
- Tilt Bed Trailer
- Four Wheel Drive All Terrain Vehicle

4.3 CHANGE ORDERS

Three change orders were issued during HMO Project 28 for a net change in contract price of (+) \$32,451.02 or 36.7% of the original contract total. Table 4-2 presents a cost summary of project change orders. Appendix C contains copies of the Change Orders issued for the project.

TABLE 4-2
CHANGE ORDER SUMMARY
HMO PROJECT 28

CHANGE ORDER	AMOUNT	DATE
No. 1	\$ 11,290.05	July 12, 1991
No. 2	\$ 57.50	August 28, 1991
No. 3	\$ 21,103.47	October 11, 1991
TOTAL	\$ 32,451.02	

During the course of construction twenty-eight changes to the original contract were required. Eleven openings, found during the course of construction, were added to the project and two sites deleted due to natural abatement since the sites were inventoried. Two other sites were deleted when it was determined that the owners were actively working the claim and thus were ineligible for inclusion in the project. Of the seventeen remaining changes, five were instituted due to hazardous working conditions (fractured, unstable, or overhanging rock) in the mine portal areas. This required changing the specified reclamation from cable nets or adit gates (closures requiring the use of vibratory drilling equipment) to three and four foot diameter corrugated galvanized steel culverts with locking hatches.

One site required a change from the specified grate to an institutional closure. The Allegheny #2-2, a deep shaft, was originally specified for a 36' x 36' steel grate system. However, at the time of construction, the mine opening was larger due to an on-going collapse and a 36' x 36' grate would not adequately obstruct the opening. Since a 36' x 36' grate is the largest size available, an alternate plan was devised to install 4 delineator posts. These posts extend 10 feet above ground surface, are painted bright orange, and have hazard signs attached. A price was negotiated with the contractor for installation of the posts as the contract did not provide a bid item or a unit price for this work.

Other changes resulted from directives issued by new owners, lessees, or claimants not originally contacted for reclamation consent. The reclamation specified for a site was modified to a closure approved by the new owner.

4.4 CONSTRUCTION ACTIVITIES/QUANTITIES USED

The Contractor performed the following work during HMO Project 28:

- ♦ Backfilled 34 mine openings with 8,056.5 cubic yards of material
- ♦ Blasted and collapsed 7 mine openings
- ♦ Installed 12 adit culverts with locking hatches

- ♦ Installed 2 cable net closures
- ♦ Installed 3 steel gate adit doors
- ♦ Installed 12 steel grate systems with locking hatches
- ♦ Installed 51 Owner-provided hazard signs
- ♦ Erected 6,965 linear feet of farm type 5-wire fence
- ♦ Installed 4 delineator posts
- ♦ Seeded, fertilized and mulched all areas disturbed by construction operations

5.0 PROJECT COSTS

5.1 PAYMENT REQUESTS

The total contract amount of HMO Project 28 was \$ 120,800.52 compared to the engineers' estimate of \$ 98,550.00. The primary differences between the engineers' estimate and the contract total were the final quantities of additional backfill material (\$ 18,515.00) and farm fencing (\$ 4,680.00) used. Table 5-1 presents a summary of the approved payment requests issued for HMO Project 28. Appendix E contains copies of these documents, the Certificate of Substantial Completion and the Affidavit on Behalf of Contractor.

TABLE 5-1
PAYMENT REQUEST SUMMARY
HMO PROJECT 28

PAYMENT REQUEST	AMOUNT	DATE
No. 1	\$ 56,427.52	July 12, 1991
No. 2	\$ 36,910.15	August 29, 1991
Final	\$ 27,462.85	October 11, 1991
Total Contract Amount	\$ 120,800.52	

5.2 COST PER DISTRICT/MINE OPENING

The cost of reclamation performed in the two mining districts is presented in Table 5-2. These totals include fabrication cost of the steel grate sections which were provided to the contractor for installation at project sites. Appendix F contains a summary of project quantities and details the costs for each mine opening involved in HMO Project 28.

TABLE 5-2
COST PER DISTRICT
HMO PROJECT 28

MINING DISTRICT	COST
Construction	
Austin	\$ 20,567.17
Marysville	\$ 100,233.35
TOTAL CONSTRUCTION COST	\$ 120,800.52
Grate Fabrication	
Austin	\$ 10,689.80
Marysville	\$ 16,376.19
TOTAL GRATE FABRICATION COSTS	\$ 27,065.99
TOTAL PROJECT COSTS	\$ 147,866.51

5.3 PROFESSIONAL SERVICE FEES

Services provided by Chen-Northern, Inc. included landowner consent, budget preparation, grant application, weed board approval, engineering design, construction contract administration, quantity accounting and full-time resident inspection. The project included 56 site locations and resulted in extensive travel time. Construction activities were performed during the summer of 1991. An analysis of these fees in relation to the total project cost is included in Table 5-3.

TABLE 5-3
ANALYSIS OF PROFESSIONAL SERVICE FEES
HMO PROJECT 28

ENGINEERING

Design - Grant Preparation, Site Evaluation, Engineering and Bid Documents	\$ 18,182.96
Inspection - Construction Administration, Construction Inspection, and Final Report	<u>\$ 25,909.45</u>
Total Engineering Fee	\$ 44,092.41

CONSTRUCTION

Steel Grate Fabrication	\$ 27,065.99
Contractors Construction	<u>\$ 120,800.52</u>
Total Construction Cost	\$ 147,866.51

PERCENTAGE ANALYSIS

Design Cost/Total Construction Cost	12.3%
Inspection Cost/Total Construction Cost	17.5%
Total Engineering Fee/Total Construction Cost	29.8%

6.0 PROJECT SUMMARY

6.1 PROJECT RECONCILIATION

Table 6-1 summarizes the differences between the reclamation closures specified in contract documents and those actually constructed. Appendix F contains a reconciliation of the work specified in the contract documents compared to what was actually constructed at each site involved in HMO Project 28.

TABLE 6-1
RECLAMATION CLOSURES SPECIFIED VS. CONSTRUCTED
HMO PROJECT 28

CLOSURE	NUMBER SPECIFIED	NUMBER CONSTRUCTED
Steel Grate Systems	9	12
Adit Culverts	9	12
Adit Gates	3	3
Cable Nets	3	2
Blasts	3	7
Backfill	3800 cy	8056.5 cy
Farm Fence	6000 lf	6965 lf
Signs	70	51
Delineator Posts	0	4

The Austin Mining District included abatement of twenty-one sites at twelve locations including one site in the Scratchgravel District. Fourteen of these sites were backfilled or blasted closures with nearly 1400 cy of material, steel grates were installed over five shafts, and fences were erected around mine openings at two sites.

The larger and more developed Marysville District consisted of ninety-three sites at forty-four locations. The Drumlummon Hill, with its large glory holes and deep shafts, had the highest concentration of mine openings. Twenty-six mine openings on the Drumlummon Hill were closed by methods including backfilling, steel grate systems, culverts with locking hatches, and fences. Hazard signs were installed around the perimeter of two large glory holes. The grassy meadows along the Continental Divide, popular with winter recreationists, had six shafts backfilled. The Strawberry mine used the greatest amount of backfill (2700 cy) placed in four openings and had one adit collapsed with explosives. Seven sites on the Grady Ranch located in the dry hills north of Little Prickly Pear Creek, were protected with fences, a grate system, and blast closures. One site did provide the AMRB Project Manager, Ed Gensler, an insight to the hazards of abandoned mine reclamation work when a rattlesnake was uncovered beneath some mine timbers.

6.2 SITE CONDITIONS AFTER COMPLETION

During the course of construction the AMRB Project Manager, Ed Gensler, made frequent visits to the project sites. Together with Chen-Northern's project inspector, nearly all sites were inspected for acceptance as they were completed. However, near the end of the contract period, all Owner-provided hazard signs had been utilized. Signs were unavailable for installation at two sites. These are the Robert Emmet site # 25-63 (1 sign) and the Allegheny site # 2-2 (4 signs). The contract time expired before additional signs were obtained. The AMRB may wish to include this minor work in a future project.

6.3 MONITORING AND MAINTENANCE

Periodic monitoring for subsidence of sites backfilled during the project should be conducted to ensure adequacy of the fill while the contractor is still in the area. Landowners were offered a "permanent" closure by selecting the backfill option. To minimize any liability to the State, all backfilled mine openings should be inspected on an annual basis for several years following completion of the project. The semi-permanent closures (culverts, cable nets, steel grates etc.) installed during the project may protect against unauthorized entry for a limited time. Vandalism and damage due to natural causes has been, and will continue to be, a problem with these types of closures. To reduce the public safety hazard associated with damaged closures, a monitoring program should be instituted to inspect all

bulkheads and fences periodically. Any human or naturally caused damage should be reported to landowners for subsequent repair. It should be noted that maintenance of steel grates, adit gates and doors, hatches, locks, and bulkheads are the responsibility of individual claimants.

Revegetation success should be monitored for several years. Vegetation inspections should identify seeding failures on reclaimed sites and document species which are better suited to revegetate reclaimed sites. The presence or absence of weeds should also be documented to satisfy weed control obligations.

Maintenance on the Marysville District Shannon site, constructed during Mine Seal Project, Phase 10, in 1984, was performed during HMO Project 28. The maintenance consisted of backfilling a hazardous subsidence resulting from settlement which had occurred since the initial reclamation.

7.0 COMMENTS

Two sites were dropped from the contract when it was learned the claimants were actively working and improving their mines. Portals had been cleared, timbers installed and ore removed from the property at these mines. A Small Miner Exclusion Statement (SMES) is required for this type of work. However, a person filing a SMES pursuant to the Montana Metal Mine Reclamation Act is ineligible for participation in the AMR program. A stipulation of the SMES requires the operator to provide appropriate protection for human and animal life at the mine site by installing safety doors and collars, fencing, and signs etc. Since SMES information is not available to the public (i.e. engineering firms), perhaps DSL/AMRB should screen for SMESs prior to inclusion of sites in future projects in order to avoid such conflicts.

On several occasions, during construction of HMO Project 28, the contractor only employed a crew of one or two persons. This level of staffing increased oversight inspection and administration costs and reduced the efficiency of the construction project. We recommend that total contract time allowed for each project be closely reviewed and shortened if practical. This would require the contractor to employ larger crews to perform the work in less time, resulting in greater efficiency and cost savings.

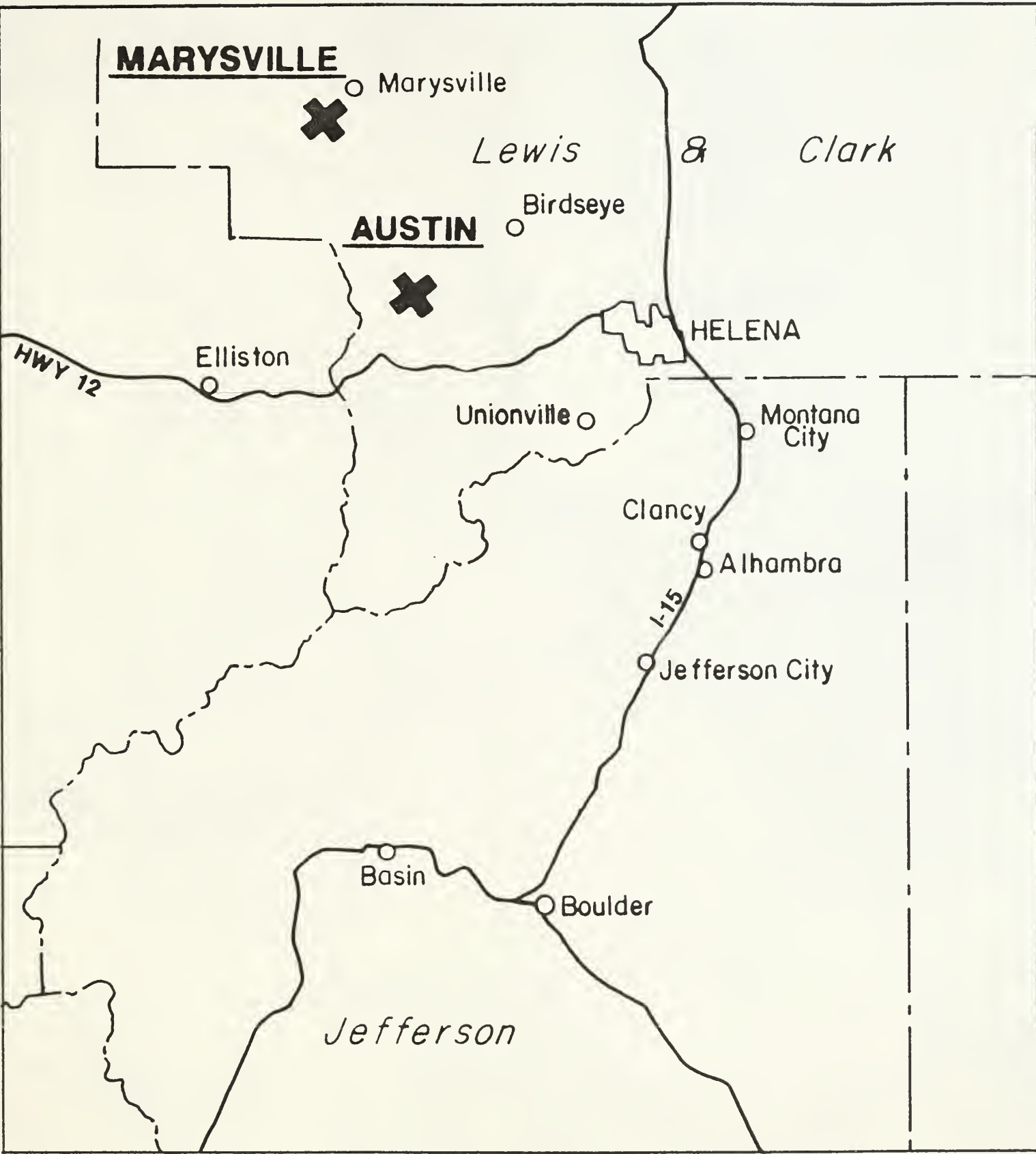
The installation of adit gates, doors, and cable nets often requires the use of air driven or electric vibrating drills. Contractors and their crews are reluctant to use this type of equipment where fractured, unstable, or overhanging rock is present for fear that the vibrations caused in the drilling process will dislodge this material and cause injury. Of the eight adit gates specified in HMO Project 28, only three were installed due to unsafe working conditions in the portal areas. The remaining gates were changed to culvert closures. Another disadvantage of using adit doors is the fact that the doors are often secured to existing mine timbers, which, over time, will rot or become dislodged. Adit doors are also easily susceptible to vandalism.

We feel these concerns are significant and we therefore recommend that the use of cable net closures and adit gates be discontinued except as a last resort at sites exhibiting competent rock. Corrugated galvanized steel culverts with a minimum three foot diameter opening are a good alternative for providing access to mine openings.

8.0 PHOTOGRAPHIC RECORD

Before, during, and post-construction print and slide photographs were taken of each opening. This photographic record is contained in Appendix G.

APPENDIX A
VICINITY AND HAZARD MAPS



MARYSVILLE

○ Marysville

Lewis

&

Clark

AUSTIN

○ Birdseye

HELENA

Elliston

Unionville ○

Montana City

Clancy

Alhambra

Jefferson City

Basin

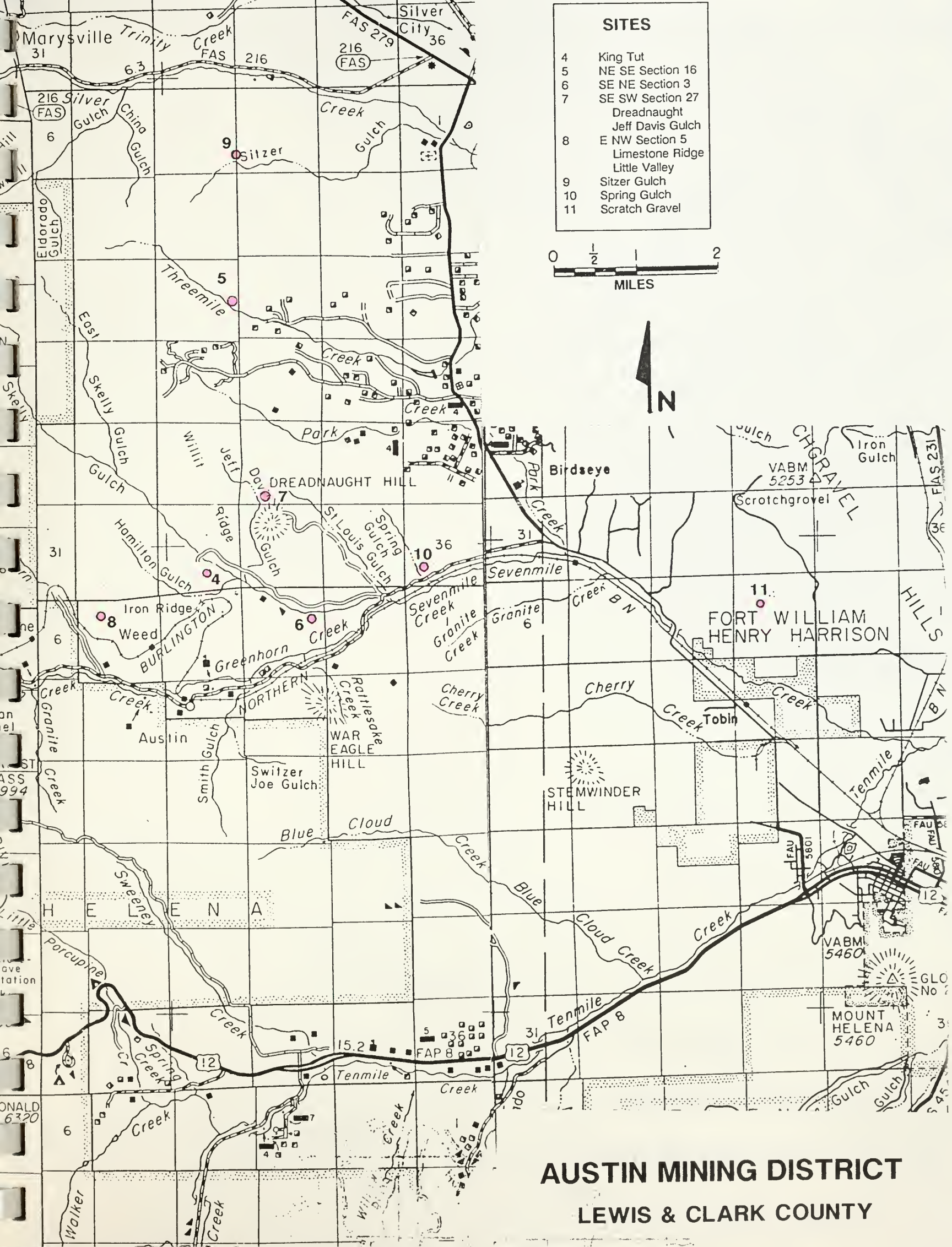
○ Boulder

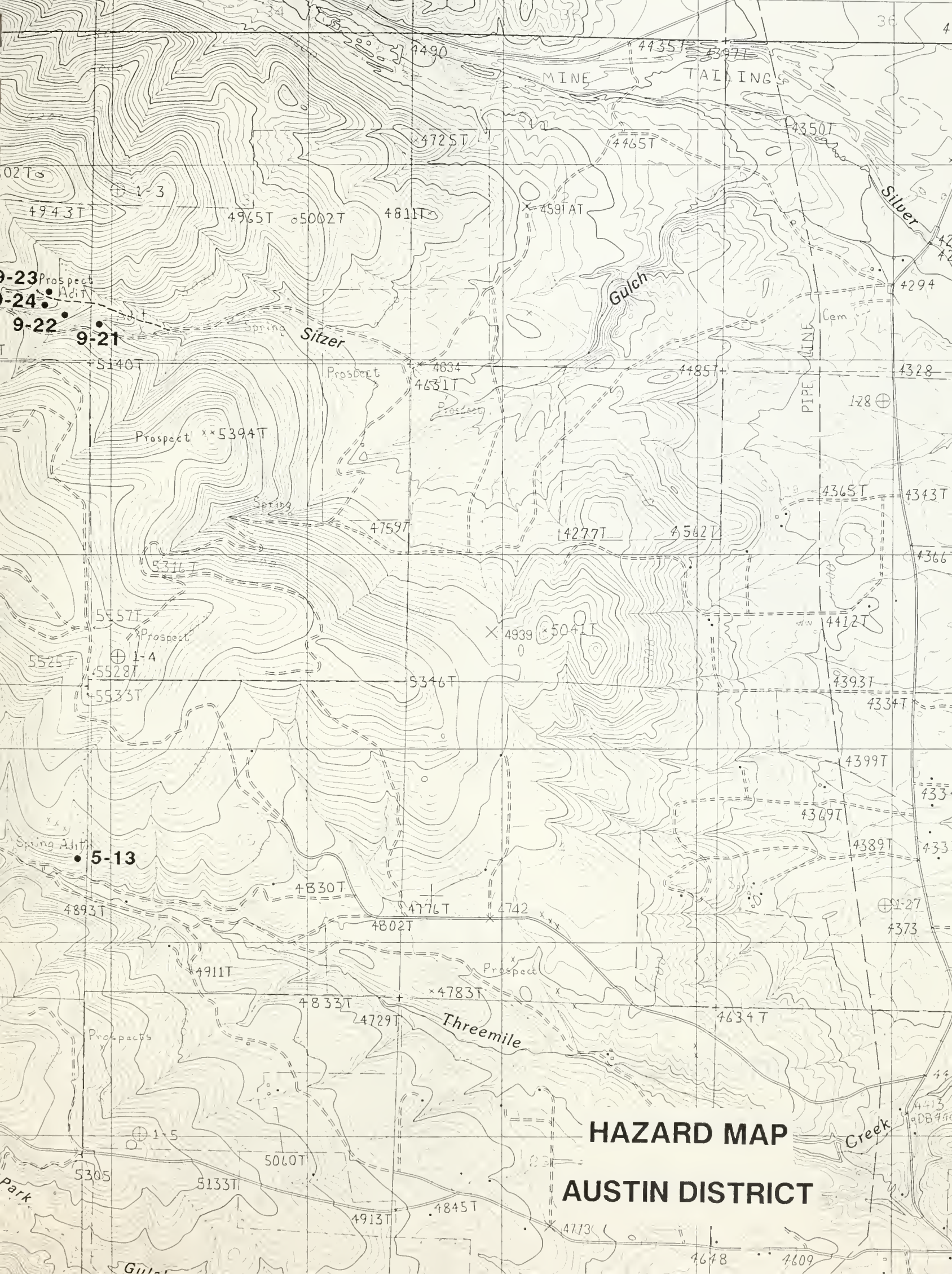
Jefferson



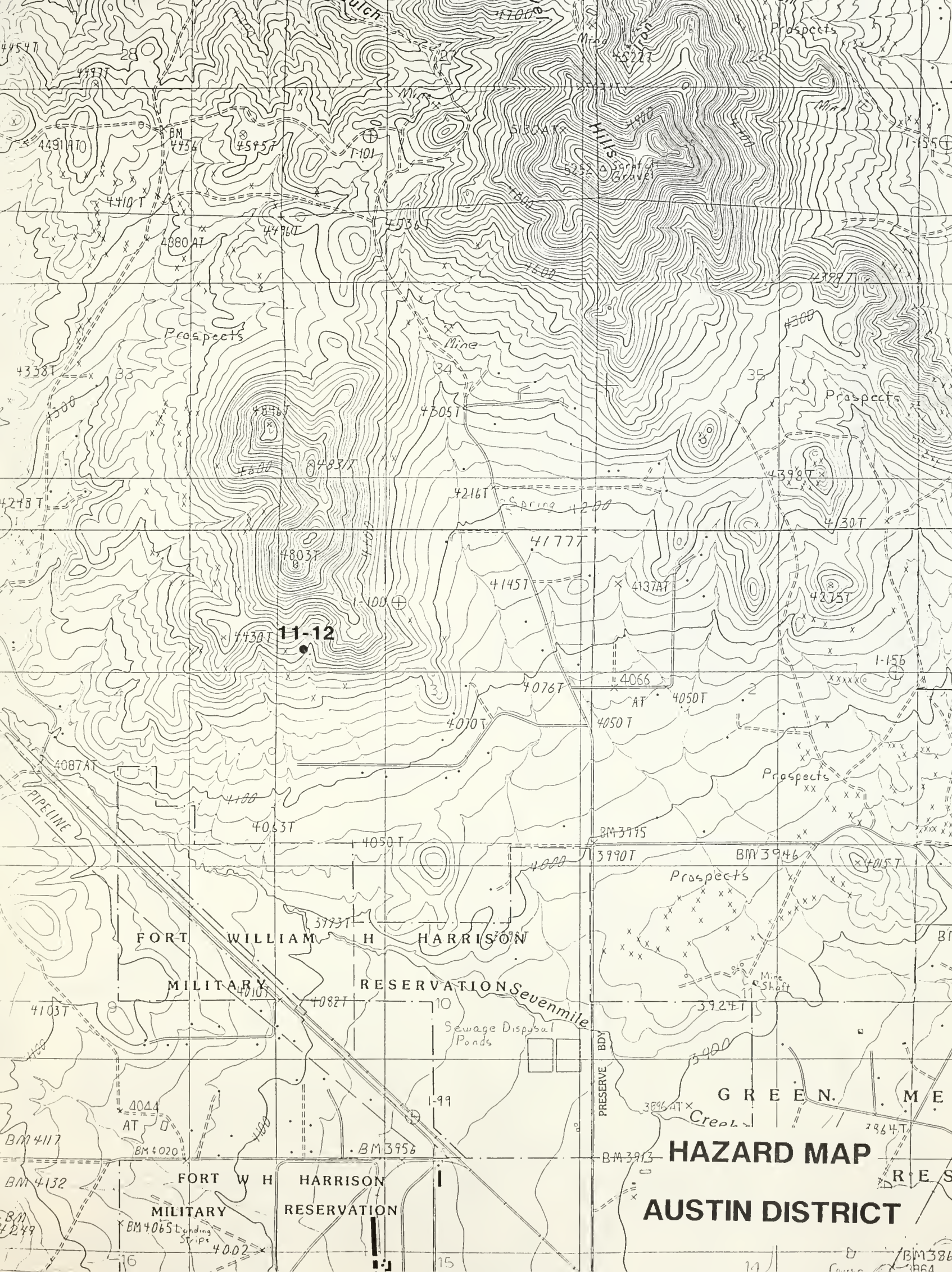
0 5 10

MILES

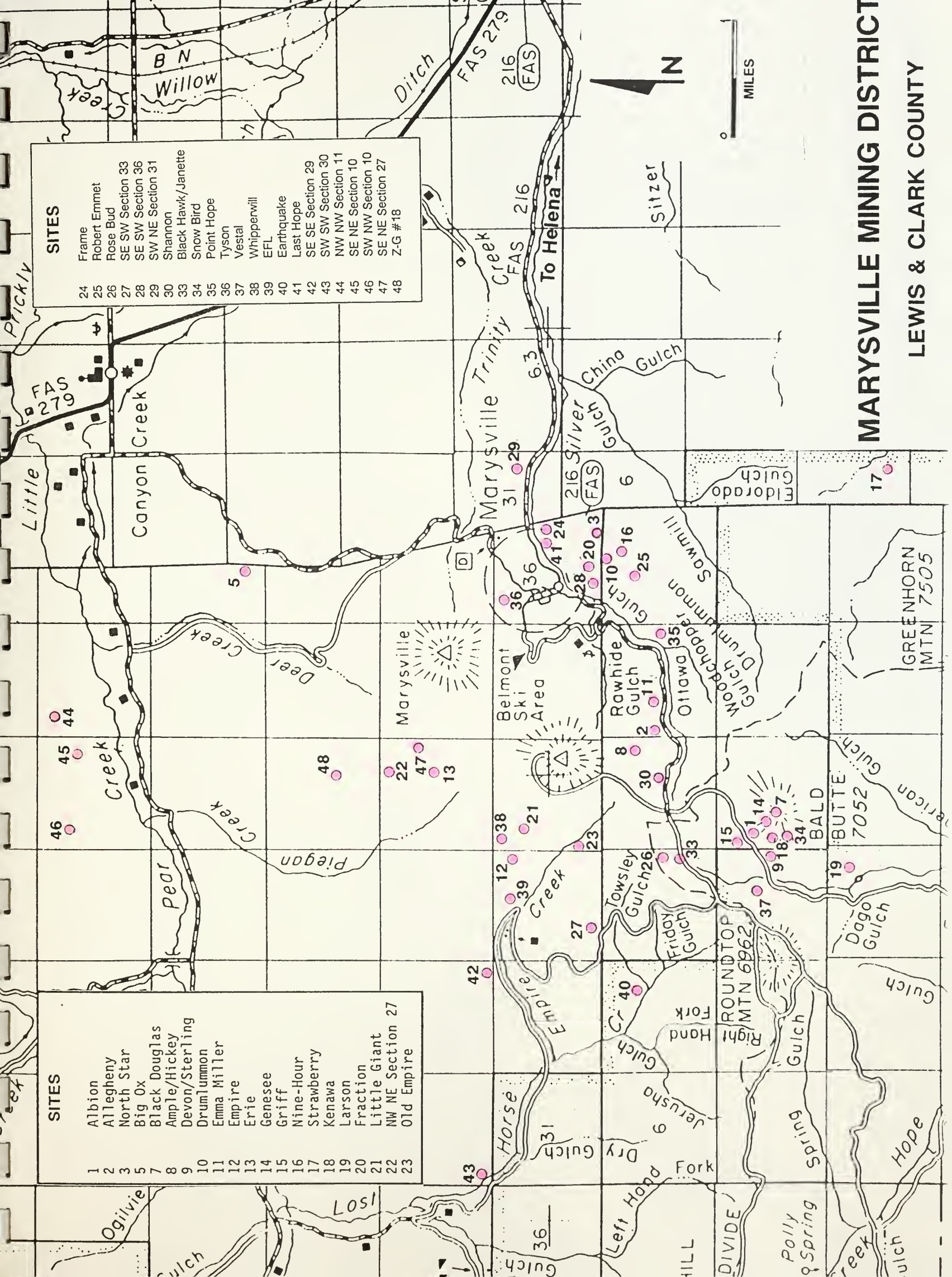








HAZARD MAP
AUSTIN DISTRICT



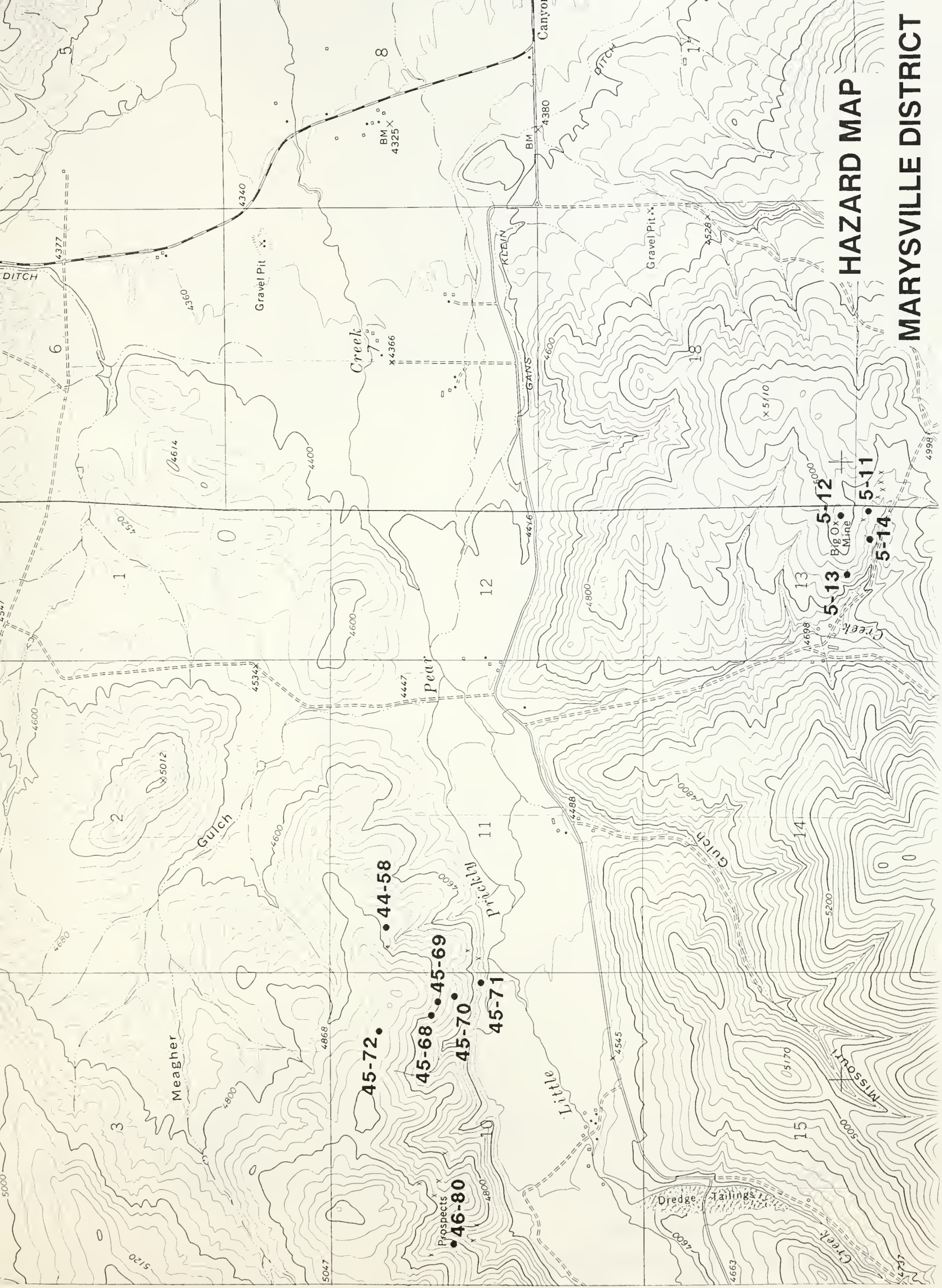
SITES

- 1 Albion
- 2 Allegheny
- 3 North Star
- 5 Big Ox
- 7 Black Douglas
- 8 Ample/Hickey
- 9 Devon/Sterling
- 10 Drumlummon
- 11 Emma Miller
- 12 Empire
- 13 Erie
- 14 Genesee
- 15 Griff
- 16 Nine-Hour
- 17 Strawberry
- 18 Kenawa
- 19 Larson
- 20 Fraction
- 21 Little Giant
- 22 NW NE Section 27
- 23 Old Empire

SITES

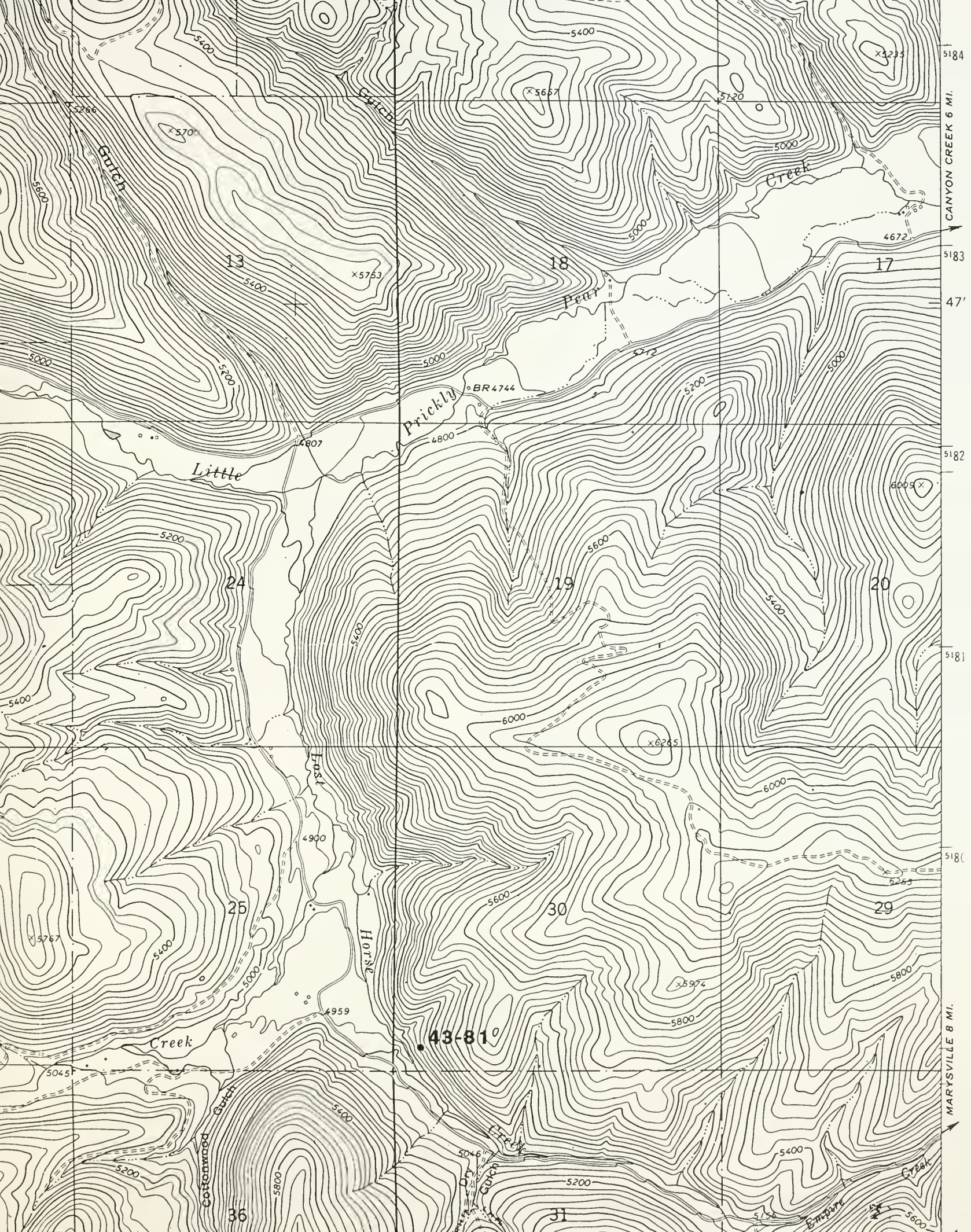
- 24 Frame
- 25 Robert Emmet
- 26 Rose Bud
- 27 SE SW Section 33
- 28 SE SW Section 36
- 29 SW NE Section 31
- 30 Shannon
- 33 Black Hawk/Janette
- 34 Snow Bird
- 35 Point Hope
- 36 Tyson
- 37 Vestal
- 38 Whipperwill
- 39 EFL
- 40 Earthquake
- 41 Last Hope
- 42 SE SE Section 29
- 43 SW SW Section 30
- 44 NW NW Section 11
- 45 SE NE Section 10
- 46 SW NW Section 10
- 47 SE NE Section 27
- 48 Z-G #18

MARYSVILLE MINING DISTRICT
LEWIS & CLARK COUNTY

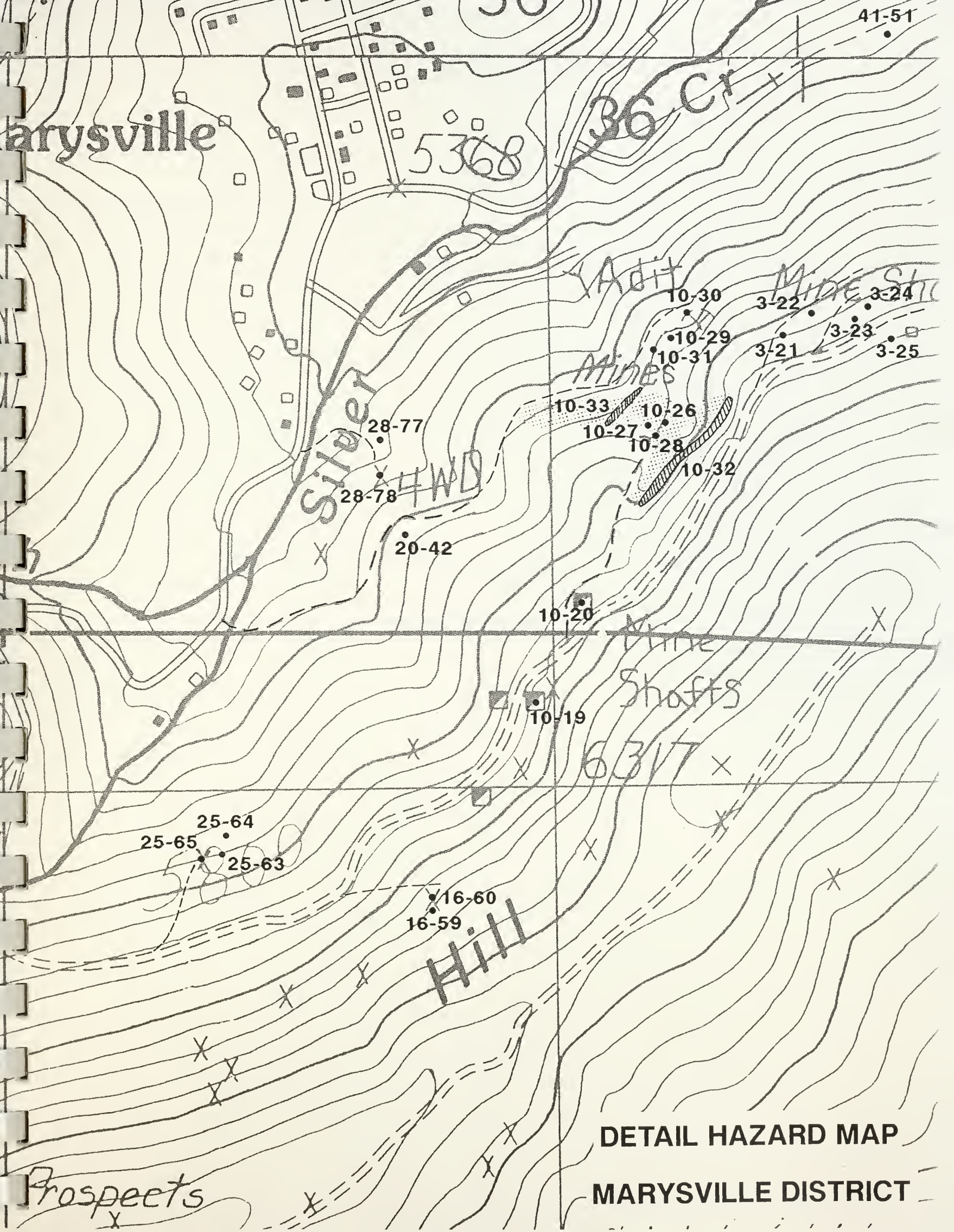


HAZARD MAP

MARYSVILLE DISTRICT



HAZARD MAP MARYSVILLE DISTRICT



DETAIL HAZARD MAP
MARYSVILLE DISTRICT

APPENDIX B
BID TABULATIONS

HAZARDOUS MINE OPENING PROJECT 28
LEWIS AND CLARK COUNTY, MONTANA

DSL/AMRB 90-022
DATE NOVEMBER 8, 1990

BID TABULATIONS				ENGINEER'S ESTIMATE		Swan & Sons Construction		Big Sky Asphalt Co.		Scott Construction, Inc.	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
1.	1.0	LS	Mobilization	2,500.00	2,500.00	22,500.00	21,875.00	21,875.00	1,924.50	1,924.50	1,924.50
2.	3,800	CY	Backfilling mine openings	5.00	19,000.00	3.75	14,250.00	5.00	3,000.00	4.35	16,530.00
3.	3	EA	Blast/Collapsing mine openings	500.00	1,500.00	1,000.00	3,000.00	625.00	1,875.00	275.00	825.00
4.	8	EA	Steel Gate Adit Door	1,600.00	12,800.00	350.00	2,800.00	2,000.00	16,000.00	1,350.00	10,800.00
5.	5	EA	Adit and Shaft Culverts	1,600.00	7,500.00	780.00	3,900.00	1,600.00	8,000.00	1,300.00	6,500.00
6.	8	EA	Cable Net Mine Closure	750.00	2,250.00	150.00	450.00	900.00	2,700.00	600.00	1,800.00
7.	9	EA	Steel Grate Systems	2,100.00	18,900.00	1,300.00	11,700.00	1,600.00	14,400.00	1,980.00	17,820.00
8.	70	EA	Attaching Permanent Owner-Provided Signs	30.00	2,100.00	45.00	3,150.00	40.00	2,800.00	15.00	1,050.00
9.	6,000	LF	Farm Fence (Type F-5)	5.00	30,000.00	4.80	28,800.00	5.00	30,000.00	4.85	29,100.00
10.	1.0	LS	Miscellaneous Site Work	2,000.00	2,000.00	8,000.00	8,000.00	3,000.00	3,000.00	2,000.00	2,000.00
TOTAL FOR PHASE 28					98,550.00		98,550.00		119,650.00		88,349.50

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HAZARDOUS MINE OPENING PROJECT 28
LEWIS AND CLARK COUNTY, MONTANA

DSL/AMRB 90-022
DATE NOVEMBER 8, 1990

BID TABULATIONS				ENGINEER'S ESTIMATE		Hallett Reclamation Co.	Coleman Construction Inc.			Sharbono Construction Inc.
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price					
1.	1.0	LS	Mobilization	2,500.00	2,500.00	10,855.00	3,000.00	3,000.00	1,000.00	1,000.00
2.	3,800	CY	Backfilling mine openings	5.00	19,000.00	3.21	7.00	26,600.00	4.50	17,100.00
3.	3	EA	Blast/Collapsing mine openings	500.00	1,500.00	246.82	300.00	900.00	300.00	900.00
4.	8	EA	Steel Gate Adit Door	1,600.00	12,800.00	2,194.06	1,800.00	12,000.00	1,450.00	11,600.00
5.	5	EA	Adit and Shaft Culverts	1,500.00	7,500.00	4,925.20	1,800.00	9,000.00	1,500.00	7,500.00
6.	3	EA	Cable Net Mine Closure	750.00	2,250.00	2,597.00	500.00	1,500.00	750.00	2,250.00
7.	9	EA	Steel Grate Systems	2,100.00	18,900.00	1,596.54	2,700.00	24,300.00	2,000.00	18,000.00
8.	70	EA	Attaching Permanent Owner-Provided Signs	30.00	2,100.00	15.76	30.00	2,100.00	35.00	2,450.00
9.	6,000	LF	Farm Fence (Type F-5)	5.00	30,000.00	1.61	5.00	30,000.00	6.15	36,900.00
10.	1.0	LS	Miscellaneous Site Work	2,000.00	2,000.00	13,595.00	1,645.00	1,645.00	1,000.00	1,000.00
TOTAL FOR PHASE 28					98,550.00	112,490.00		111,045.00		98,700.00

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BID TABULATIONS				ENGINEER'S ESTIMATE		Shumaker Truckign & Excavating Contractors			
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price				
1.	1.0	LS	Mobilization	2,500.00	2,500.00	15,000.00	15,000.00	0.00	0.00
2.	3,800	CY	Backfilling mine openings	5.00	19,000.00	5.00	19,000.00	0.00	0.00
3.	3	EA	Blast/Collapsing mine openings	500.00	1,500.00	750.00	2,250.00	0.00	0.00
4.	8	EA	Steel Gate Adit Door	1,600.00	12,800.00	1,500.00	12,000.00	0.00	0.00
5.	5	EA	Adit and Shaft Culverts	1,500.00	7,500.00	1,500.00	7,500.00	0.00	0.00
6.	3	EA	Cable Net Mine Closure	750.00	2,250.00	1,000.00	3,000.00	0.00	0.00
7.	9	EA	Steel Grate Systems	2,100.00	18,900.00	2,000.00	18,000.00	0.00	0.00
8.	70	EA	Attaching Permanent Owner-Provided Signs	30.00	2,100.00	30.00	2,100.00	0.00	0.00
9.	6,000	LF	Farm Fence (Type F-5)	5.00	30,000.00	7.50	45,000.00	0.00	0.00
10.	1.0	LS	Miscellaneous Site Work	2,000.00	2,000.00	10,000.00	10,000.00	0.00	0.00
TOTAL FOR PHASE 28					98,550.00		133,850.00	0.00	0.00

APPENDIX C
KEY RECEIPT ACKNOWLEDGEMENTS

I hereby acknowledge receipt of keys to the locks on the steel grates installed at the following abandoned mine project site:

Austin Mining District
Jeff Davis Gulch site #7-16
SE SW Section 27 site #7-17
Lewis and Clark County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. ~~The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.~~ *SMB*

I certify that I have read, understand, and concur with the statements made on this page.

I acknowledge receipt of the keys and that protective measures are installed. No other responsibility is assumed or implied.

S. J. Bingham *9/19/91*
Name Date

Witness

Date

I hereby acknowledge receipt of keys to the locks on the steel grates installed at the following abandoned mine project site:

Austin Mining District
Jeff Davis Gulch site #7-16
SE SW Section 27 site #7-17
Lewis and Clark County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

Owen F. Labrie 9-16-91
Name Date

Ranger Cooper 9.16.91
Witness Date

I hereby acknowledge receipt of keys to the locks on the accessing culverts, cable net, and steel grate installed at the following abandoned mine project sites:

Marysville Mining District
Big Ox sites #5-11, 5-12, 5-13 & 5-14
Lewis and Clark County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

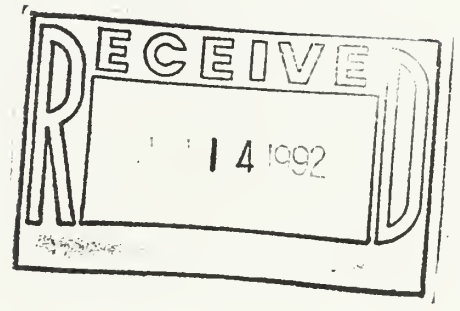
I certify that I have read, understand, and concur with the statements made on this page.

Charles D. Mc Donald
Name

9/21/91
Date

Patricia Flynn
Witness

9/21/91
Date



I hereby acknowledge receipt of keys to the locks on the accessing culvert and adit gate doors installed at the following abandoned mine project sites:

Marysville Mining District
E.F.L. site #39-35
Empire sites #12-38 & #12-43
Lewis and Clark County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

Harris A Peterson
Name

1-6-92
Date

Ken M. Sahalek
Witness

1-6-92
Date

I hereby acknowledge receipt of keys to the locks on the accessing culverts and steel gate adit door installed at the following abandoned mine project sites:

Marysville Mining District
SE NE Section 27 site #47-73
NW NE Section 27 sites #22-53 & #22-56
Z-G #18 site #48-90
Lewis and Clark County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

Name Regina L. Briggs Date 10/19/91

Witness

Date

I hereby acknowledge receipt of keys to the locks on the accessing culverts and steel grates installed at the following abandoned mine project sites:

Marysville Mining District
Ample/Hickey site #8-3
Drumlummon sites # 10-19 & 10-20
Last Hope site #41-51
Point Hope site #35-34
Lewis and Clark County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

John Drummond *9-16-91*
Name *President* Date
St. John Drummond Co.

Witness

Date

I hereby acknowledge receipt of keys to the locks on the steel grates installed at the following abandoned mine project sites:

Marysville Mining District
Kenawa site #18-49
Snow Bird site #34-83
Lewis and Clark County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.


Name _____ Date 12/9/91


Witness _____ Date 12/9/91

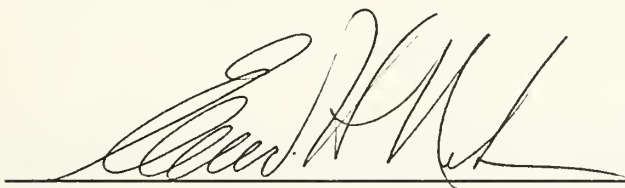
I hereby acknowledge receipt of keys to the locks on the accessing culverts installed at the following abandoned mine project sites:

Marysville Mining District
Robert Emmet sites #25-64 & #25-65
Lewis and Clark County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

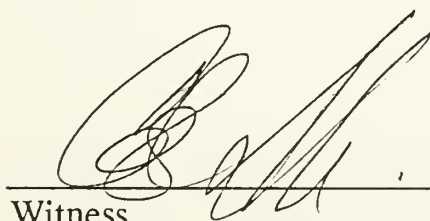
I certify that I have read, understand, and concur with the statements made on this page.



Name

9/19/91

Date



Witness

9/19/91

Date

I hereby acknowledge receipt of keys to the locks on the steel grate installed at the following abandoned mine project site:

Marysville Mining District
SE NE Section 10 site #45-72
Lewis and Clark County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

Clark Raymond B
Name

25 Sept 91
Date

Witness

Date

I hereby acknowledge receipt of keys to the locks on the cable net installed at the following abandoned mine project site:

Marysville Mining District
SW SW Section 30 site #43-81
Lewis and Clark County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. ~~The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.~~ *SMB*

I certify that I have read, understand, and concur with the statements made on this page.

I acknowledge receipt of keys to locks, no other responsibility is assumed or implied.

Erwin R. Bingham *10/1/91*
Name Date

Rick Graham *10-1-91*
Witness Date

APPENDIX D
CHANGE ORDERS

CHANGE ORDER

ORDER NO. 1

PROJECT TITLE: Hazardous Mine Opening Project 28

MONT A/E or DSL-AMRB: 90-022

CONTRACT DATE: May 28, 1991

OWNER: Montana Department of State Lands/Abandoned Mine Reclamation Bureau

CONTRACTOR: Scott Construction, Inc., P.O. Box 777, East Helena, MT 59635

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Austin/Sitzer Gulch site #9-22 Delete: 150 L.F. farm fence 2 hazard signs Add: 16' x 24' steel grate					-727.50 - 30.00 1980.00	1222.50
2.	Austin/Sitzer Gulch site #9-21 Delete: 50 cu. yds backfill Add: Blast					-217.50 275.00	57.50
3.	Austin/Little Valley site #8-3 Add: 261 cu. yds. backfill					1135.35	1135.35
4.	Austin/Limestone Ridge site #8-4 Add: 179 cu. yds backfill					778.65	778.65
5.	Austin/Dreadnaught site #7-15 Add: 475 L.F. farm fence 2 hazard signs					2216.45 30.00	2246.45
6.	Austin/Jeff Davis Gulch site #7-16 Add: 24' x 24' steel grate					1980.00	1980.00
7.	Austin/SE SW Sec. 27 site #7-17 Add: 16' x 24' steel grate					1980.00	1980.00
8.	Austin/Scratch Gravel site #11-12 Add: 24' x 24' steel grate					1980.00	1980.00
9.	Marysville/Strawberry site #17-93 Delete: 84 cu. yds backfill Add: Blast					-365.40 275.00	-90.40
TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.							11,290.05
OVERHEAD & PROFIT @ <u>N/A</u> %							-0-
GRAND TOTAL - THIS CHANGE ORDER							11,290.05

Original Contract Price	<u>88,349.50</u>
Current Contract Price Adjusted by Previous Change Order	<u>0.00</u>
Cost this Change Order (+ or -)	<u>11,290.05</u>
New Contract Price including this Change Order	<u>99,639.55</u>

The completion date as set forth in the Contract Documents shall be (~~unchanged~~, increased, ~~decreased~~) by 6 calendar days.

The date for completion of all work will be September 11, 1991.

Description and Justification for Change:

1. Site was accessible with equipment and was changed to steel grate system at request of landowner.
2. Lack of equipment access.
3. Additional site backfilled at request of claimant.
4. Additional site backfilled at request of claimant.
5. Additional site fenced at request of claimant.
6. Additional site with 24 x 24 steel grate system installed at request of claimant.
7. Additional site with 16 x 24 steel grate system installed at request of claimant.
8. Additional site with 24 x 24 steel grate system installed at request of claimant.
9. Lack of equipment access

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by \$_____ (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by \$_____ (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA
RESIDENT AGENT

SURETY

Gordon J. McManus

By: _____

Seal

Recommended by: Jeremiah B. Bowser
Engineer

7/12/91
Date

Accepted by: Scott Construction Co. Patrick Scott, Pres
Contractor

7-12-91
Date

Approved by: Lang Maull
Owner

7/15/91
Date

CHANGE ORDER

ORDER NO. 2

PROJECT TITLE: Hazardous Mine Opening Project 28

MONT A/E or DSL-AMRB: 90-022

CONTRACT DATE: May 28, 1991

OWNER: Montana Department of State Lands/Abandoned Mine Reclamation Bureau

CONTRACTOR: Scott Construction, Inc., P.O. Box 777, East Helena, MT 59635

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Marysville/2-6 #18 site #48-91 Delete: 50 cy Backfill Add: Blast					4.35 cy 275.00	-217.50 275.00
2.	Marysville/BigOx Site 5-11 Add: Culvert					1,300.00	1,300.00
3.	Marysville/Devon-Sterling site 9-18 Delete: Culvert					-1,300.00	-1,300.00
TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.							57.50
OVERHEAD & PROFIT @ <u>incl</u> %							included
GRAND TOTAL - THIS CHANGE ORDER							57.50

Original Contract Price	88,349.50
-------------------------	-----------

Current Contract Price Adjusted by Previous Change Order	99,639.55
--	-----------

Cost this Change Order (+ or -) 57.50

New Contract Price including this Change Order	99,697.05
--	-----------

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased)

by -0- calendar days.

The date for completion of all work will be September 11, 1991.

Description and Justification for Change:

1. Lack of equipment access.
2. Additional site with 3' culvert installed at request of claimant.
3. Natural Abatement.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by \$_____ (100% of the Change Order amount!) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by \$_____ (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA
RESIDENT AGENT

SURETY

Flynn Insurance Agency

P.O. Box 1256 Helena, Montana 59624

Transamerica Premier Insurance Company

Gordon D. McMenure

By: Sally D. [Signature]

Seal

Recommended by: Jeremiah B. Bousser

Engineer

8/28/91

Date

Accepted by: Patti Scott, Kate Const

Contractor

8-29-91

Date

Approved by: Eugene Maubell

Owner

8/30/91

Date

CHANGE ORDER

ORDER NO. 3

PROJECT TITLE: Hazardous Mine Opening Project 28

MONT A/E or DSL-AMRB: 90-022

CONTRACT DATE: May 28, 1991

OWNER: Montana Department of State Lands/Abandoned Mine Reclamation Bureau

CONTRACTOR: Scott Construction, Inc., P.O. Box 777, East Helena, MT 59635

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Marysville/Z-6#18 site #48-57 Delete: 72 c.y. backfill					4.35	-313.20
2.	Marysville/SENE Section 27 site #47-73 Delete: Adit Gate Add: Culvert					1350.00 1300.00	1350.00 1300.00
3.	Marysville/SENE Section 27 site #47-74 Delete: 50 c.y. backfill Add: Blast					4.35 275.00	-217.50 275.00
9.	Marysville/Shannon site #30-96 Add: 350 c.y. backfill * Note: Work performed at this site as on-going maintenance					4.35	1522.50
5.	Marysville/Robert Emmett #25-64					1300.00	1300.00
6.	Marysville/Framesites#24-63 and #24-64 Delete: Adit Gates 2 ea Add: Culvert 2 ea					13500.00 1300.00	2700.00 2600.00
8.	Marysville/Point Hope #35-34 Delete: Cable Net Add: Culvert					600.00 1300.00	-600.00 1300.00
8.	Marysville/E.F.L. site #39-35 Delete: Adit Gate Add: Culvert					1350.00 1300.00	1350.00 1300.00
9.	Marysville/NWNE Section 27 sites 22-54 and #22-55 Delete: Adit Gate Delete: Blast					1350.00 275.00	1350.00 -275.00
10.	Marysville/SENE Section 10 #4572 Delete: Fence 100 L.F. Sign 1 Add: 10' x 10' steel grate system					4.85 L.F. 1980.00	-485.00 -15.00 1980.00
11.	Marysville/Earthquake #40-36 Delete: Steel grate system Add: Backfill 66 c.y. Mobilization 3 hours					1980.00 4.35 50.00	1980.00 287.10 150.00

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
12.	Marysville/Empire #12-43 Add: Adit Gate					1350.00	1350.00
13.	Marysville/Last Hope #41-51 Delete: Adit Gate Add: Culvert					1350.00 1300.00	-1350.00 -1300.00
14.	Austin/NE SE Section 16 #5-13 Delete: Backfill 50 c.y. Add: Blast					4.35 275.00	-217.50 275.00
15.	Marysville/Alleghenysite #2-2 Delete: Steel grate system Add: Delineator Posts 4 ea					1980.00 150.00	-1980.00 600.00
16.	Marysville/Robert Emmett #24-63 Add: Fence 216 L.F.					4.85 L.F.	1047.60
	RECONCILIATION OF PLAN QUANTITIES						
17.	<u>Backfill</u> Original Contract Qty. 3800 c.y. Deleted by Change Order <u>356 c.y.</u> Adj. orig. qty. 3444 c.y. Total backfill installed 7200.5 Less Adjusted Orig. qty. <u>3444.0</u> 3756.5 c.y.					4.35	16,340.77
18.	<u>Attaching Owner Provided Signs</u> Original Contract Qty. 70 Deleted by change order <u>3</u> Adjusted Orig. Qty 67 Total Signs Installed 49 Less Adjusted Orig. Qty. <u>67</u> -18					15.00	-270.00
19.	Farm fence (Type F-5) Original contract qty 6000 L.F Deleted by change order <u>250 L.F</u> Adjusted original qty 5750 L.F Total fence installed 6292 L.F Less adjusted original qty <u>5750 L.F</u> 542 L.F.					4.85	2628.70
TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.						21,103.47	
OVERHEAD & PROFIT @___ %						included	
GRAND TOTAL - THIS CHANGE ORDER						21,103.47	

Original Contract Price	88,349.50
Current Contract Price Adjusted by Previous Change Order	99,697.05
Cost this Change Order (+ or -)	21,103.47
New Contract Price including this Change Order	120,800.52

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by 0 calendar days.

The date for completion of all work will be September 12, 1991.

Description and Justification for Change:

1. Natural Abatement
2. Fractured, unstable or overhanging rock creating unsafe working conditions in portal area.
3. Lack of equipment access
- *4. Work performed at this site as on-going maintenance
5. Additional site identified and 3' diameter culvert installed
6. Fractured, unstable or overhanging rock creating unsafe working conditions in portal area
7. Fractured, unstable or overhanging rock creating unsafe working conditions in portal area
8. Fractured, unstable or overhanging rock creating unsafe working conditions in portal area
9. Sites are active and therefore not eligible for abatement under AMR program
10. Site was accessed with equipment and changed to grate system at request of landowner.
11. Site backfilled at request of claimant
12. Additional site identified and adit gate installed at landowner request.
13. Fractured, unstable or overhanging rock creating unsafe working conditions in portal area
14. Lack of equipment access
15. Mine opening too large to accommodate steel grate system
16. Additional site identified and fenced at landowner request
17. Reconciliation of Plan vs Actual Quantities for Backfill
18. Reconciliation of Plan vs. Actual Quantities for Signs
19. Reconciliation of Plan vs. Actual Quantities for Farm Fence

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by \$21,103.47 (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by \$21,103.47 (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA
RESIDENT AGENT

SURETY

Gordon D. McManus Transamerica Premier Ins.
Flynn Insurance Agency By: Julie Chanda
Seal

Recommended by: Jeremiah B. Boush Chen-Northrup 10/11/91
Engineer Date

Accepted by: Patricia Scott Scott Const 10-11-91
Contractor Date

Approved by: Edward C. Lenz Oct 17, 1991
Owner Date

APPENDIX E

**APPROVED PAYMENT CERTIFICATES OF SUBSTANTIAL COMPLETION REQUESTS,
AND AFFIDAVIT ON BEHALF OF CONTRACTOR**

PAYMENT REQUEST NO. 1

FROM 5-28-91 TO 6-30-91

PROJECT TITLE: Hazardous Mine Opening Project 28

LOCATION: Lewis & Clark County, MT MONT A/E or DSL-AMRB: 90-022

NAME OF CONTRACTOR: Scott Construction, Inc.

ADDRESS: P.O. Box 777, East Helena, MT 59635

SUMMARY OF PROJECT STATUS

Amount of Original Contract

\$ 88,349.50

Change Order No. 1

\$ 11,290.05

Change Order No.

\$

Change Order No.

\$

Amount of Approved Change Order(s)

\$ 11,290.05

TOTAL CONTRACT AMOUNT

\$99,639.55

Pay Request No.	Amount of Request
1	\$56,427.52

Total Contract Amount Completed to Date

\$ 56,427.52

Less Retainage (%)

\$ 5,642.75

TOTAL AMOUNT EARNED TO DATE

\$ 50,784.77

Less Previous Payments

\$ -0-

AMOUNT DUE THIS PAYMENT

\$ 50,784.77

Less 1% Tax

\$ 507.85

TOTAL DUE CONTRACTOR

\$ 50,276.92

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

APPROVED BY:

Scott Construction, Inc.

Contractor

By Patti Scott, Pres

Date 7-12-91

Dept. of State Lands, Abandoned Mine Reclamation Bureau

Owner

By EET Gary Marshall

Date 7/15/91

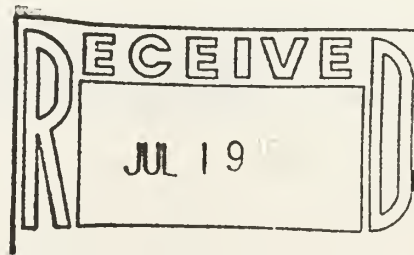
RECOMMENDED BY:

Chen-Northern, Inc.

Engineer

By Jeremiah B. Bowser

Date 7/12/91



CHANGE ORDER WORK COMPLETED

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed To Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization							-0-
2.	Backfilling Mine Openings <u>Change Order #1</u> Austin/LittleValley #8-3 Austin/LimestoneRdge #8-4	261 c.y. 179 c.y.	4.35 4.35		261 c.y. 179 c.y.	261 c.y. 179 c.y.	1135.35 778.65	1135.35 778.65
3.	Blasting/Collapsing Mine Openings <u>Change Order #1</u> Austin/Sitzer Gulch #9-21 Marysville/Strawberry #17-93	1 1	275.00 275.00		1 1	1 1	275.00 275.00	275.00 275.00
4.	Steel Gate Adit Door							
5.	Adit and Shaft Culverts							
6.	Cable Net Mine Closure							
7.	Steel Grate System <u>Change Order #1</u> Austin/Sitzer Gulch #9-22 Austin/Jeff Davis Gulch #7-16 Austin/SWSE Sec. 27 #7-17 Austin/Scratch Gravel #11-12	1 1 1 1	1980.00 1980.00 1980.00 1980.00		1 1 1 1	1 1 1 1	1980.00 1980.00 1980.00 1980.00	1980.00 1980.00 1980.00 1980.00
8.	Attaching Permanent Owner Provided Signs <u>Change Order #1</u> Austin/Dreadnaught #7-15	2	15.00		2	2	30.00	30.00
9.	Farm Fence (Type F-5) <u>Change Order #1</u> Austin/Dreadnaught #7-15	457	4.85		457	457	2216.45	2216.45
10.	Miscellaneous Site Work							
	Materials on Site (Attach Schedule)	-	-	\$	\$	— >	\$	\$
TOTAL							\$	\$12,630.45

PAYMENT REQUEST NO. 2

FROM 7-1-91 TO 7-31-91

PROJECT TITLE: Hazardous Mine Opening Project 28

LOCATION: Lewis & Clark County, MT MONT A/E or DSL-AMRB: 90-022

NAME OF CONTRACTOR: Scott Construction, Inc.

ADDRESS: P.O. Box 777, East Helena, MT 59635

SUMMARY OF PROJECT STATUS

Amount of Original Contract \$ 88,349.50

Change Order No. 1 \$ 11,290.05

Change Order No. 2 \$ 57.50

Change Order No. \$

Amount of Approved Change Order(s) \$ 11,347.55

TOTAL CONTRACT AMOUNT \$99,697.05

Pay Request No.	Amount of Request
1	\$56,427.52
2	\$36,910.15

Total Contract Amount Completed to Date \$ 93,337.67

Less Retainage (10 %) \$ 9,333.76

TOTAL AMOUNT EARNED TO DATE \$ 84,003.91

Less Previous Payments \$ 50,276.92

AMOUNT DUE THIS PAYMENT \$ 33,726.99

Less 1% Tax \$ 337.26

TOTAL DUE CONTRACTOR \$ 33,389.73

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

APPROVED BY:

Scott Construction, Inc.

Contractor

Dept. of State Lands, Abandoned Mine Reclamation Bureau

Owner

By Patricia Scott, Pres

Date 8-29-91

RECOMMENDED BY:

By ECP Gary Marshall

Date 8/30/91

Chen-Northern, Inc.

Engineer

By Jeremiah B. Bowser

Date 8/28/91

CHANGE ORDER NO. 2

[illegible]

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FINAL PAYMENT REQUEST
PAYMENT REQUEST NO. 3

FROM 8-1-91 TO 9-12-91

PROJECT TITLE: Hazardous Mine Opening Project 28
LOCATION: Lewis & Clark County, MT MONT A/E or DSL-AMRB: 90-022
NAME OF CONTRACTOR: Scott Construction, Inc.
ADDRESS: P.O. Box 777, East Helena, MT 59635

SUMMARY OF PROJECT STATUS

Amount of Original Contract \$ 88,349.50
Change Order No. 1 \$ 11,290.05
Change Order No. 2 \$ 57.50
Change Order No. 3 \$ 21,103.47
Amount of Approved Change Order(s) \$ 32,451.02
TOTAL CONTRACT AMOUNT \$ 120,800.52

Pay Request No.	Amount of Request
1	\$56,427.52 50,784.12
2	\$36,910.15 33,204.12
3	\$27,462.85 36,707.28
TOTAL	\$120,800.52

Summary of
Change Orders
Maybe "Amount of
Request" is a misnomer

Total Contract Amount Completed to Date \$ 120,800.52
Less Retainage (10 %) \$ -0-
TOTAL AMOUNT EARNED TO DATE \$ 120,800.52
Less Previous Payments \$ 84,511.76
AMOUNT DUE THIS PAYMENT \$ 36,288.76
Less 1% Tax \$ 362.88
TOTAL DUE CONTRACTOR \$ 35,925.73

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

APPROVED BY:

Scott Construction, Inc.
Contractor
By Patricia Scott, Pres
Date 10-11-91

Dept. of State Lands, Abandoned Mine Reclamation Bureau
Owner
By Edward C. Bensch
Date Oct 17, 1991

RECOMMENDED BY:
Chen-Northern, Inc.
Engineer
By Jeremiah B. Brouse
Date 10/11/91

**COMPLETED WORK
ORIGINAL WORK**

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed To Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization	1.0	LS	1.0	0	1.0	1,924.50	0
2.	Backfilling Mine Openings	3800	4.35 c.y.	7,017.5	183	7,200.5	31,322.17	796.05
3.	Blasting/Collapsing Mine Openings	3	275.00 ea	0	2	2	550.00	550.00
4.	Steel Gate Adit Door	8	1,350.00 ea	0	2	2	2,700.00	2,700.00
5.	Adit and Shaft Culverts	5	1,300.00 ea	4	0	4	5,200.00	0
6.	Cable Net Mine Closure	3	600.00 ea	0	2	2	1,200.00	1,200.00
7.	Steel Gate System	9	1,980.00 ea	7	0	7	13,860.00	0
8.	Attaching Permanent Owner Provided Signs	70	15.00 ea	45	4	49	735.00	60.00
9.	Farm Fence (Type F-5)	6000	4.85 l.f.	5,556	736	6,292	30,516.20	3,569.60
10.	Miscellaneous Site Work	1.0	LS	0	1.0	1.0	2,000.00	2,000.00
						Sub-total	90,022.87	10,875.65
	Change Order No. 1						12,630.45	0
	Change Order No. 2						1,575.00	0
	Change Order No. 3						16,587.20	16,587.20
	Materials on Site (Attach Schedule)	--	--	-\$	\$	— >	\$	\$
TOTAL							\$120,800.52	\$ 27,462.85

CHANGE ORDER WORK COMPLETED
CHANGE ORDER NO. 3

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed To Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization <u>Marysville/Earthquake #40-36</u>	3.0 hrs	50.00		3.0	3.0	150.00	150.00
2.	Backfill Mine Openings <u>Marysville/Shannon #30-96</u> * (Work performed at this site as on-going maintenance)	350 c.y.	4.35 c.y.		350 c.y.	350 c.y.	1522.50	1522.50
	<u>Marysville/Earthquake #40-36</u>	66 c.y.	4.35 c.y.		66 c.y.	66 c.y.	287.10	287.10
3.	Blasting/Collapsing Mine Openings <u>Marysville/SENE Sec 27 Site #47-74</u>	1	275.00		1	1	275.00	275.00
	<u>Austin/NESE Sec 16 Site #5-13</u>	1	275.00		1	1	275.00	275.00
4	Steel Gate Adit Doors <u>Marysville/Empire #12-43</u>	1	1350.00		1	1	1350.00	1350.00
5	Adit & Shaft Culverts <u>Marysville District</u> SENE Section 27 #47-73 Robert Emmett #25-64 Frame #24-63 Frame #24-64 Point Hope #35-34 Last Hope #41-51 E.F.L. #39-35	7	1300.00		7	7	9100.00	9100.00
7	Steel Gate Systems <u>Marysville/SENE Section 10</u> <u>Site #45-72</u>	1	1980.00		1	1	1980.00	1980.00
9	Farm Fence (Type F-5) <u>Marysville/Robert Emmett Site #25-63</u>	216	4.85		216 L.F.	216 L.F.	1047.60	1047.60
11	Delineator Posts <u>Marysville/Allegheny #2-2</u>	4	150.00		4	4	600.00	600.00
	Materials on Site (Attach Schedule)	--	--	\$	\$	— >	\$	\$
TOTAL							\$16,587.20	\$16,587.20

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STATE LANDS

CONTRACTOR'S CERTIFICATE OF COMPLETION

TO (Owner): State of Montana DATE: _____
Department of State Lands PROJECT TITLE: ~~Hazardous Mine Opening~~
Capitol Station Project 28
Helena, MT 59620 MONT A/E or DSL-AMRB: 90-022
ATTN: Engineer Mr. Ed Gensler CONTRACT DATE: May 28, 1991
FROM: Scott Construction, Inc.
(Firm or Corporation)

This is to certify that I, Ms. Patti Scott, am an authorized official of
Scott Construction, Inc., working in the
capacity of President and have been properly authorized by said
firm or corporation to sign the following statements pertaining to the subject contract:

I know of my own personal knowledge, and do hereby certify, that the work of the contract described above has been performed, and materials used and installed in every particular, in accordance with, and in conformity to, the Contract Plans and Specifications.

The contract work is now complete in all parts and requirements and ready for your final inspection.

I understand that neither the determination of the Engineer that the work is complete nor the acceptance thereof by the Owner shall operate as a bar to claim against the Contractor under the terms of the guarantee provisions of the Contract Documents.

CONTRACTOR:

Scott Const. Inc.

By: Patti Scott, Pres
Title

Distribution: 1. Project Manager
2. Field Office
3. File

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STATE LANDS

CERTIFICATE OF SUBSTANTIAL COMPLETION

TO: State of Montana, Department of State Lands OWNER

PROJECT TITLE: Hazardous Mine Opening, Project 28, Lewis & Clark County, Montana
 MONT A/E or DSL-AMRB: 90-022 SUBSTANTIAL COMPLETION DATE: September 10, 1991
 CONTRACT DATE: May 28, 1991 DSL INSPECTION DATE: _____
 LOCATION: Lewis & Clark County, Montana ENGINEER: Chen-Northern, Inc.
 PROJECT OR PART SHALL INCLUDE: Remediation of hazardous mine openings PERFORMANCE BOND NO: TPI - 3222427
 DATE OF BOND: May 17, 1991
 SURETY: Transamerica Insurance Co.
 CONTRACTOR: Scott Construction, Inc. MONTANA AGENT: Sally C. Dundas
 ADDRESS: P.O. Box 777 Flynn Insurance Agency
East Helena, MT 59635 ADDRESS: P.O. Box 6169
 TELEPHONE NO: (406) 227-5740 Helena, MT 59604

The Work performed under this Contract has been inspected by authorized representatives of the Owner, Contractor, and Engineer, and the Project (or specified part of the Project, as indicated above) is hereby declared to be substantially completed on the above date.

DEFINITION OF SUBSTANTIAL COMPLETION

The date of substantial completion of a project or specified area of a project is the date when the construction is sufficiently completed, in accordance with the contract documents, as modified by any change orders agreed to by the parties, so the Owner can occupy or utilize the project or specified area of the project for the use for which it was intended.

A tentative list of items to be completed is appended hereto. This list may not be exhaustive, and the failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents.

ENGINEER: Chen-Northern, Inc.

By Jeremiah B. Boush 10/18/91
 Authorized Representative Date

The Contractor accepts the above Certificate of Substantial Completion and agrees to complete and correct the items on the tentative list within the time indicated.

CONTRACTOR: Scott Construction, Inc.

By Patti Scott, Pres 10-18-91
 Authorized Representative Date

The Owner accepts the Project or specified area of the Project as substantially complete and will assume full possession of the project or specified area at _____ (time), on 10/24/91 (date). The responsibility for heat, utilities, security, and insurance under the Contract Documents shall be as set forth under "Remarks" below.

OWNER: State of Montana, Department of State Lands

By Edward P. Lusk Oct 24, 1991
 Authorized Representative Date

Remarks: (Attach additional sheet, if necessary)

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CERTIFICATE OF ACCEPTANCE

STATE LANDS

TO: State of Montana, Department of State Lands OWNER

PROJECT TITLE: Hazardous Mine Opening, Project 28, Lewis & Clark County, Montana

MONT A/E or DSL-AMRB: 90-022

FINAL ACCEPTANCE DATE: _____

CONTRACT DATE: May 28, 1991

DSL INSPECTION DATE: _____

LOCATION: Lewis & Clark County, Montana

ENGINEER: Chen-Northern, Inc.

PROJECT OR PART SHALL INCLUDE: Remediation of hazardous mine openings

PERFORMANCE BOND NO: TPI - 3222427

DATE OF BOND: May 17, 1991

SURETY: Transamerica Insurance Service

CONTRACTOR: Scott Construction, Inc.

MONTANA AGENT: Sally C. Dundas

ADDRESS: P.O. Box 777

Flynn Insurance Agency

East Helena, MT 59635

ADDRESS: P.O. Box 61695

TELEPHONE NO: (406)227-5740

Helena, MT 59604

The Work performed under this Contract has been inspected by authorized representatives of the Owner, Contractor, and Engineer, and the Project (or specified part of the Project, as indicated above) is hereby declared to be totally completed and accepted on the above date.

ENGINEER:

Chen-Northern, Inc.

By Jeremiah B. Bowser 10/18/91
Authorized Representative Date

The Contractor accepts the above Certificate of Acceptance and agrees to abide by the conditions of the one-year warranty period which began on the substantial completion date.

CONTRACTOR:

Scott Construction, Inc.

By Patti Scott Pres. 10-18-91
Authorized Representative Date

The Owner accepts the Project as totally complete, and final payment is due to the Contractor as provided in the contract documents.

OWNER:

State of Montana, Department of State Lands

By Oct 24, 1991 Edward P. Sewell
Authorized Representative Date

APPENDIX F
QUANTITIES AND COSTS

HAZARDOUS MINE OPENING PROJECT 28
PROJECT TOTALS
QUANTITIES AND COSTS

District Name	Grates	Culverts	Adit Gates	Cable Nets	Blasts	Backfill (C.Y.)	Farm Fence (L.F.)	Signs	DeL. Posts	Cost
Austin	5	0	0	0	2	1395.5	652	4		31,256.97
Marysville	7	12	3	2	5	6659	5640	47	4	116,609.54
PROJECT TOTALS	12	12	3	2	7	8056.5	6292	51	4	147,866.51

HAZARDOUS MINE OPENING PROJECT 28
AUSTIN MINING DISTRICT
QUANTITIES AND COSTS

SITE NAME	NO.	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	COST
Dreadnaught	7-15	Fence	Fence		457	2	2246.45
East NW Sec. 5	8-5	Backfill	Backfill	50			217.50
	8-6	Backfill	Backfill	50			226.20
	8-7	Grate	24'x 24' Grate				1980.00 (Installation) 2478.52 (Fabrication)
Jeff Davis Gulch	7-16	Grate	24'x 24' Grate				1980.00 (Installation) 2478.52 (Fabrication)
King Tut	4-9	Backfill	Backfill	99			430.65
	4-10	Backfill	Backfill	70			304.50
	4-11	Backfill	Backfill	156			678.60
Limestone Ridge	8-4	Backfill	Backfill	179			778.65
Little Valley	8-3	Backfill	Backfill	261			1135.35
NE SE Sec. 16	5-13	Backfill	Blast				275.00
SE NE Sec. 3	6-14	Backfill	Backfill	78			339.30
SE SW Sec. 27	7-17	Grate	16'x 24' Grate				1980.00 (Installation) 1627.12 (Fabrication)
Sitzer Gulch	9-21	Backfill	Blast				275.00
	9-22	Fence	16'x 24' Grate				1980.00 (Installation) 1627.12 (Fabrication)
	9-23	Fence	Fence		195	2	975.75
	9-24	Backfill	Backfill	129.5			563.33
Scratch Gravel	11-12	Grate	24'x 24' Grate				1980.00 (Installation) 2478.52 (Fabrication)
Spring Gulch	10-25	Backfill	Backfill	50			217.50
	10-26	Backfill	Backfill	221			961.35
	10-27	Backfill	Backfill	50			217.50
Mobilization							404.54
Misc. Site Work							420.00
TOTAL				1395.5	652	4	\$ 31,256.97

HAZARDOUS MINE OPENING PROJECT 28
MARYSVILLE MINING DISTRICT
QUANTITIES AND COSTS

SITE NAME	NO.	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	COST
Albion	1-1	Sign	Sign			1	15.00
Allegheny	2-2	Grate	Del. Posts			0	600.00
Ample/Hickey	8-3	Grate	32'x 36' Grate				1980.00 (Installation) 6864.64 (Fabrication)
	8-4	Fence	Fence		373	0	1839.05
Big Ox	5-14	Culvert	Culvert				1300.00
	5-12	Grate	16'x 24' Grate				1980.00 (Installation) 1627.12 (Fabrication)
	5-13	Cable Net	Cable Net				600.00
	5-14	Culvert	Culvert				1300.00
Black Douglas	7-15	Fence	Fence		177	1	873.45
Blackhawk/Janette	33-16	Backfill	Backfill	65			282.75
	33-17	Backfill	Backfill	373			1622.55
	33-97	Backfill	Backfill	119			517.65
	33-98	Backfill	Backfill	119			517.65
Devon/Sterling	9-18	Culvert	Dropped				-
Drumlummon	10-19	Grate	16'x 16' Grate				1980.00 (Installation) 1044.38 (Fabrication)
	10-20	Grate	8'x 16' Grate				1980.00 (Installation) 522.19 (Fabrication)
	10-26 10-27 10-28	Fence	Fence		387	2	1906.95
	10-29 10-31	Fence	Fence		324	2	1601.40
	10-30	Fence	Fence		192	2	961.20
	10-32	Sign	Sign			2	30.00
	10-33	Sign	Sign			3	45.00
E.F.L.	39-35	Adit Gate	Culvert				1300.00
Earthquake	40-36	Grate	Backfill	66			287.10 150.00 (Mobilization)
Emma Miller	11-37	Fence	Fence		123	1	611.55

HAZARDOUS MINE OPENING PROJECT 28
MARYSVILLE MINING DISTRICT
QUANTITIES AND COSTS
(continued)

SITE NAME	NO.	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	COST
Empire	12-38	Adit Gate	Adit Gate				1300.00
	12-43	Adit Gate	Adit Gate				1350.00
Erie	13-39	Backfill	Backfill	167			726.45
	13-40	Backfill	Backfill	222			965.70
	13-41	Backfill	Backfill	208			904.80
Fraction	20-42	Fence	Fence		208	2	1300.00
Frame	24-63	Adit Gate	Culvert				1300.00
	24-64	Adit Gate	Culvert				1300.00
Genesee	14-44	Fence	Fence		541	4	2683.85
	13-48	Fence	Fence		683	4	3372.55
	14-46	Fence	Fence		150	1	732.80
Griff	15-47	Fence	Fence		138	1	684.30
Kenawa	18-48	Fence	Fence		148	1	732.80
	18-49	Grate	24'x 24' Grate				1980.00 (Installation) 2478.52 (Fabrication)
Larson	19-50	Fence	Fence		104	1	519.40
Last Hope	41-51	Adit Gate	Culvert				1300.00
Little Giant	21-52	Fence	Fence		181	1	892.85
NW NE Sec. 27	22-54	Adit Gate	Adit Gate				1350.00
	22-54	Adit Gate	Dropped				-
	22-55	Blast	Dropped				-
	22-56	Culvert	Culvert				1300.00
NW NW Sec. 11	44-58	Fence	Fence		123	1	611.55
Nine Hour	16-59 16-60	Fence	Fence		224	1	1101.40
North Star	3-21	Backfill	Backfill	12			52.20
	3-22	Backfill	Backfill	278			1209.30
	3-23	Backfill	Backfill	278			1209.30
	3-24	Backfill	Backfill	346			1505.10

HAZARDOUS MINE OPENING PROJECT 28
MARYSVILLE MINING DISTRICT
QUANTITIES AND COSTS
(continued)

SITE NAME	NO.	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	COST
North Star	3-25	Fence	Fence		117	2	597.45
Old Empire	23-61	Backfill	Backfill	367			1335.45
	23-62	Backfill	Backfill	52			226.20
Point Hope	35-34	Cable Net	Culvert				1300.00
Robert Emmet	25-63	Fence	Fence		216	1	1047.60
	25-64	Culvert	Culvert				1300.00
	25-65	Culvert	Culvert				1300.00
Rose Bud	26-66	Backfill	Backfill	375			1631.25
SE NE Sec.10	45-68	Fence	Fence		102	1	509.70
	45-69	Blast	Blast				275.00
	45-70	Fence	Fence		117	1	592.15
	45-71	Blast	Blast				275.00
	45-72	Fence	10'x 10' Grate				1980.00 (Installation) 509.42 (Fabrication)
SE NE Sec. 27	47-73	Adit Gate	Culvert				1300.00
	47-74	Backfill	Blast				275.00
SE SE Sec. 29	42-75	Backfill	Backfill	63			274.05
SE SW Sec. 33	27-76	Backfill	Backfill	120			522.00
SE SW Sec. 36	28-77	Backfill	Backfill	367			1596.45
	28-78	Backfill	Backfill	86			374.10
Shannon	30-96	Backfill	Backfill	350			1522.50
SW NE Sec. 31	28-78	Fence	Fence		158	1	781.30
SW SW Sec. 10	46-80	Fence	Fence		392	1	1916.20
SW SW Sec. 30	43-81	Cable Net	Cable Net				509.70
Snow Bird	34-83	Grate	24'x 32' Grate				1980.00 (Installation) 3329.92 (Fabrication)
Strawberry	17-92	Backfill	Backfill	305			1326.75
	17-93	Backfill	Blast				275.00
	17-94	Backfill	Backfill	43			187.05

HAZARDOUS MINE OPENING PROJECT 28
MARYSVILLE MINING DISTRICT
QUANTITIES AND COSTS
(continued)

SITE NAME	NO.	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	COST
	17-95	Backfill	Backfill	489			2127.15
Strawberry	17-99	Backfill	Backfill	1851			8051.85
Tyson	36-85	Fence	Fence		220	1	1082.00
Vestal	37-86	Fence	Fence		263	1	1290.55
Whipperwill	38-87 38-88	Fence	Fence		356	4	1786.60
Z-G # 18	48-90	Fence	Fence		182	1	897.70
	48-90	Culvert	Culvert				1300.00
	48-90	Backfill	Blast				275.00
	48-57	Backfill	Dropped				-
	48-67	Fence	Fence		182	1	558.20
Mobilization							1519.96
Misc. Site Work							1580.00
TOTAL				6661	6313	47	\$ 116,609.54

APPENDIX G
PRINT AND SLIDE PHOTOGRAPH LOG

**PHOTOGRAPHIC RECORD
HMO PROJECT 28**

SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
1	5/30/91	Austin	Equipment		Concrete dolly and Dozer/Loader
2	6/10/91	Austin	Equipment		Semi-Truck Transport and grates
3	6/4/91	Austin	Equipment		Cat 931 Dozer/Loader
7	7/12/91	Marysville	Equipment		Big Bear ATV
5	6/10/91	Austin	Dreadnaught	7-16	Before fence, 50' N. of opening
6	6/25/91	Austin	Dreadnaught	7-16	Completed fence, 20' N. of opening
7	6/4/91	Austin	E NW Sec. 5	8-5	Before backfill, 20' N. of opening
6	6/5/91	Austin	E NW Sec. 5	8-5	Complete backfill, 30' N. of opening
7	6/4/91	Austin	E NW Sec. 5	8-6	Before backfill, 30' S. of opening
10	6/4/91	Austin	E NW Sec. 5	8-6	Backfilling adit, 60' S. of opening
11	6/4/91	Austin	E NW Sec. 5	8-6	Complete backfill, 30' S. of opening
12	5/28/91	Austin	E NW Sec. 5	8-7	Before grate, 10' SW of opening
13	5/28/91	Austin	E NW Sec. 5	8-7	Unloading grates, 20' NE of shaft
11	6/4/91	Austin	E NW Sec. 5	8-7	Assembling grate, 10' SW of shaft
15	6/4/91	Austin	E NW Sec. 5	8-7	Installing grate, 20' N. of shaft
16	6/10/91	Austin	E NW Sec. 5	8-7	Completed grate, 20' S. of shaft
17	6/10/91	Austin	Jeff Davis Gulch	7-16	Before grate, 15' NW of shaft
19	6/11/91	Austin	Jeff Davis Gulch	7-16	Installing grate, 20' NE of shaft
19	6/11/91	Austin	Jeff Davis Gulch	7-16	Installing grate, 20' NE of shaft
20	6/25/91	Austin	Jeff Davis Gulch	7-16	Completed grate, 20' E. of shaft
21	6/5/91	Austin	King Tut	3-7	Before backfill, 20' W. of shaft
22	6/5/91	Austin	King Tut	3-7	Completed backfill, 25' NW of shaft
23	6/5/91	Austin	King Tut	4-10	Before backfill, 20' W. of shaft
24	6/5/91	Austin	King Tut	4-11	Backfilling shaft, 10' E. of shaft
25	6/5/91	Austin	King Tut	4-10	Complete backfill, 15' W. of shaft
26	6/5/91	Austin	King Tut	4-11	Before backfill, 20' W. of shaft
27	6/5/91	Austin	King Tut	4-10	Backfilling shaft, 20' W. of shaft
28	6/5/91	Austin	King Tut	4-11	Seeding disturbed area, 20' E. of opening
29	6/5/91	Austin	King Tut	4-11	Complete backfill, 20' E. of opening
30	6/6/91	Austin	Limestone Ridge	8-4	Before backfill, 15' N. of opening
31	6/6/91	Austin	Limestone Ridge	8-4	Backfilling shaft, 15' N. of shaft

**PHOTOGRAPHIC RECORD
HMO PROJECT 28**

SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
32	6/10/91	Austin	Limestone Ridge	8-4	Complete backfill, 20' NW of shaft
33	6/6/91	Austin	Little Valley	8-3	Before backfill, 20' W. of opening
34	6/6/91	Austin	Little Valley	8-3	Complete backfill, 20' W. of opening
35	6/18/91	Austin	Little Valley	8-3	Seeded area, 20' W. of opening
36	6/6/91	Austin	NE NE Sec. 16	6-14	Before blast, 10' E. of adit
37	6/6/91	Austin	NE NE Sec. 16	5-13	Collapsing adit, 10' E. of adit
38	6/6/91	Austin	NE NE Sec. 16	6-14	Complete blast, 10' E. of adit
39	6/6/91	Austin	SE NE Sec. 3	6-14	Before backfill, 10' N. of opening
40	6/7/91	Austin	SE NE Sec. 3	6-14	Complete backfill, 10' N. of opening
41	6/10/91	Austin	SE NW Sec. 27	7-17	Before grate, 15' N. of shaft
42	6/11/91	Austin	SE NW Sec. 27	7-17	Removing headframe, 15' E. of shaft
43	6/18/91	Austin	SE NW Sec. 27	7-17	Installing grate, 30' NE of shaft
44	6/25/91	Austin	SE NW Sec. 27	7-17	Complete grate, 20' E. of shaft
45	5/30/91	Austin	Sitzer Gulch	9-21	Before blast, 20' S. of opening
46	5/30/91	Austin	Sitzer Gulch	9-21	Collapsing adit, 20' S. of opening
47	6/13/91	Austin	Sitzer Gulch	9-21	Complete blast, 20' S. of opening
47	5/29/91	Austin	Sitzer Gulch	9-22	Before grate, 10' E. of opening
47	5/29/91	Austin	Sitzer Gulch	9-22	Installing grate, 30' NE of opening
50	5/29/91	Austin	Sitzer Gulch	9-22	Installing grate, 30' NE of opening
54	5/30/91	Austin	Sitzer Gulch	9-22	Installing grate, 40' N. of opening
52	5/30/91	Austin	Sitzer Gulch	9-22	Installing grate, 40' N. of opening
53	6/13/91	Austin	Sitzer Gulch	9-22	Completed grate, 30' E. of opening
54	5/28/91	Austin	Sitzer Gulch	9-24	Before fence, 15' W. of opening
59	5/29/91	Austin	Sitzer Gulch	9-23	Installing fence, 15' S. of opening
59	6/13/91	Austin	Sitzer Gulch	9-24	Complete fence, 50' W. of opening
57	5/30/91	Austin	Sitzer Gulch	9-23	Before backfill, 15' S. of opening
59	5/30/91	Austin	Sitzer Gulch	9-24	Backfilling shaft, 15' S. of opening
59	6/18/91	Austin	Sitzer Gulch	9-24	Complete backfill, 10' S. of opening
60	6/12/91	Austin	Scratch Gravel	11-12	Before grate, 10' S. of opening
61	6/12/91	Austin	Scratch Gravel	11-12	Installing grate, 50' W. of opening
62	6/24/91	Austin	Scratch Gravel	11-12	Complete grate, 20' W. of opening

**PHOTOGRAPHIC RECORD
HMO PROJECT 28**

SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
63	6/6/91	Austin	Spring Gulch	10-25	Before backfill, 10' S. of opening
64	6/7/91	Austin	Spring Gulch	10-25	Complete backfill, 5' S. of opening
65	6/6/91	Austin	Spring Gulch	10-26	Before backfill, 10' N. of opening
66	6/7/91	Austin	Spring Gulch	10-26	Backfilling shaft, 30' N. of opening
67	6/7/91	Austin	Spring Gulch	10-26	Complete backfill, 20' W. of opening
68	6/6/91	Austin	Spring Gulch	10-27	Before backfill, 15' E. of opening
69	6/7/91	Austin	Spring Gulch	10-27	Backfilling shaft, 30' N. of opening
70	6/7/91	Austin	Spring Gulch	10-27	Complete backfill, 30' N. of opening
71	7/24/91	Marysville	Albion	1-1	Before sign, 10' S. of opening
72	7/24/91	Marysville	Albion	1-1	Complete sign installation, 20' S.
73	9/9/91	Marysville	Allegheny	2-2	Before Delineator posts, 30' S.
74	9/9/91	Marysville	Allegheny	2-2	Installing delineator posts, 10' W.
75	9/9/91	Marysville	Allegheny	2-2	Completed delineator posts, 30' E.
76	6/18/91	Marysville	Ample-Hickey	8-3	Before grate, 25' W. of opening
77	6/17/91	Marysville	Ample-Hickey	8-3	Installing grate, 20' N. of opening
78	6/18/91	Marysville	Ample-Hickey	8-3	Gap in grates, overhead
79	6/18/91	Marysville	Ample-Hickey	8-3	Gap in grates
80	6/17/91	Marysville	Ample-Hickey	8-3	Installing grate, 30' N. of opening
81	6/27/91	Marysville	Ample-Hickey	8-3	Completed grate, 50' W. of opening
82	6/17/91	Marysville	Ample-Hickey	8-4	Before fence, 30' S. of openings
83	6/17/91	Marysville	Ample-Hickey	8-4	Installing fence, 50' W. of opening
84	7/24/91	Marysville	Ample-Hickey	8-4	Complete fence, 50' N. of opening
85	7/29/91	Marysville	Big Ox	5-11	Before culvert, 10' S. of opening
86	9/9/91	Marysville	Big Ox	5-11	Complete culvert installation, 20' SW
87	7/29/91	Marysville	Big Ox	5-12	Before grate, 10' W. of shaft
88	7/29/91	Marysville	Big Ox	5-12	Installing grate, 15' W. of opening
89	7/29/91	Marysville	Big Ox	5-12	Complete grate, 10' S. of opening
90	9/9/91	Marysville	Big Ox	5-13	Before cable net, 10' W. of opening
91	9/4/91	Marysville	Big Ox	5-13	Installing cable net, 10' W. of adit
92	9/6/91	Marysville	Big Ox	5-13	Completed cable net, 10' W. of adit
93	7/29/91	Marysville	Big Ox	5-14	Before culvert, 10' S. of opening

**PHOTOGRAPHIC RECORD
HMO PROJECT 28**

SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
94	9/4/91	Marysville	Big Ox	5-14	Installing culvert, 15' S. of opening
95	7/29/91	Marysville	Big Ox	5-14	Complete culvert installation, 20' SW
96	7/1/91	Marysville	Black Douglas	7-15	Before fence, 10' E. of opening
97	7/22/91	Marysville	Black Douglas	7-15	Completed fence, 25' W. of opening
98	6/21/91	Marysville	Blackhawk-Janette	33-16	Before backfill, 20' N. of opening
99	6/21/91	Marysville	Blackhawk-Janette	33-16	Backfilling opening, 15' S.
100	6/21/91	Marysville	Blackhawk-Janette	33-16	Complete backfill, 10' N. of opening
101	6/20/91	Marysville	Blackhawk-Janette	33-17	Before backfill, 10' E. of opening
102	6/20/91	Marysville	Blackhawk-Janette	33-17	Backfilling shaft, 20' W. of opening
103	6/20/91	Marysville	Blackhawk-Janette	33-17	Completed backfill, 25' E. of opening
104	7/2/91	Marysville	Blackhawk-Janette	33-17	Seeded area, 50' NW of opening
105	6/20/91	Marysville	Blackhawk-Janette	33-97	Before backfill, 20' N. of opening
106	6/20/91	Marysville	Blackhawk-Janette	33-98	Backfilling shaft, 25' N. of opening
109	6/20/91	Marysville	Blackhawk-Janette	33-98	Complete backfill, 20' N. of opening
108	8/1/91	Marysville	Blackhawk-Janette	33-97	Seeded area, 10' N. of opening
109	6/20/91	Marysville	Blackhawk-Janette	33-98	Before backfill, 15' W. of opening
110	6/20/91	Marysville	Blackhawk-Janette	33-98	Backfilling shaft, 15' W. of opening
119	6/20/91	Marysville	Blackhawk-Janette	33-98	Backfilling shaft, 15' W. of opening
112	6/20/91	Marysville	Blackhawk-Janette	33-16	Completed backfill, 20' NW of opening
113	6/24/91	Marysville	Drumlummon	10-19	Before grate, 20' W. of opening
116	6/20/91	Marysville	Drumlummon	10-19	Installing grate, 20' W. of opening
118	6/25/91	Marysville	Drumlummon	10-19	Installing grate, 20' W. of opening
116	6/25/91	Marysville	Drumlummon	10-19	Complete grate, 20' W. of opening
117	6/24/91	Marysville	Drumlummon	10-20	Before grate, 10' E. of opening
118	6/20/91	Marysville	Drumlummon	10-20	Grate (too small) over shaft, 10' W.
119	6/25/91	Marysville	Drumlummon	10-20	Installing larger grate, 10' W.
120	8/13/91	Marysville	Drumlummon	10-20	Complete grate, 10' W. of shaft
121 122	6/19/91	Marysville	Drumlummon	10-26 10-27 10-28	Before fence, 10' N. of openings
123 124	6/19/91	Marysville	Drumlummon	10-26 10-27 10-28	Completed fence, 20' NW and 30' SW of openings

**PHOTOGRAPHIC RECORD
HMO PROJECT 28**

SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
125 126	6/3/91	Marysville	Drumlummon	10-29 10-31	Before fence, 10' N. and NW of openings
127	7/15/91	Marysville	Drumlummon	10-29 10-31	Installing fence, 30' NE of openings
128	7/15/91	Marysville	Drumlummon	10-29 10-31	Completed fence, 10' N. of openings
129	6/3/91	Marysville	Drumlummon	10-30	Before fence, 20' W. of opening
130	7/15/91	Marysville	Drumlummon	10-30	Completed fence, 10' N. of opening
131	6/18/90	Marysville	Drumlummon	10-32	Before signs, 10' W. of opening
132	6/18/90	Marysville	Drumlummon	12-38	Before signs, 30' E. of opening
133	7/15/91	Marysville	Drumlummon	10-32	Installed hazard sign, 50' S. of opening
134	7/8/91	Marysville	E.F.L.	39-35	Before culvert, 15' W. of adit
135	8/13/91	Marysville	E.F.L.	39-35	Installing culvert, 30' W. of adit
136	8/13/91	Marysville	E.F.L.	39-35	Installing culvert, 10' W. of adit
137	8/13/91	Marysville	E.F.L.	39-35	Complete culvert installation, 10' W.
148	6/3/91	Marysville	Earthquake	40-36	Before backfill, 15' W. of opening
139	9/7/91	Marysville	Earthquake	13-39	Shaft collar before backfill, 5' N.
140	9/7/91	Marysville	Earthquake	13-39	Removing timbers from shaft, 20' E.
141	9/7/91	Marysville	Earthquake	12-38	Placing backfill, 20' E. of shaft
142	9/7/91	Marysville	Earthquake	40-36	Completed backfill, 20' W. of shaft
143	9/7/91	Marysville	Earthquake	13-39	Seeded borrow area, 40' NE of shaft
144	6/17/91	Marysville	Emma Miller	11-37	Before fence, 30' S. of shaft
145	6/17/91	Marysville	Emma Miller	11-37	Before fence, 10' E. of shaft
146	7/16/91	Marysville	Emma Miller	11-37	Completed fence, 35' W. of shaft
147	7/3/91	Marysville	Empire	12-38	Before adit gate, 10' S. of adit entry
148	9/10/91	Marysville	Empire	12-38	Installing adit gate, 5' S. of adit
149	9/10/91	Marysville	Empire	12-38	Completed adit gate, 10' S. of adit
150	7/8/91	Marysville	Empire	12-43	Before adit gate, 15' SW of portal
151	9/10/91	Marysville	Empire	12-43	Installing adit gate, inside adit
152	9/10/91	Marysville	Empire	12-43	Completed adit gate, inside adit
153	7/3/91	Marysville	Erie	13-39	Before backfill, 10' W. of shaft
154	7/31/91	Marysville	Erie	13-39	Complete backfill, 50' S. of shaft
155	7/3/91	Marysville	Erie	13-40	Before backfill, 20' N. of shaft

**PHOTOGRAPHIC RECORD
HMO PROJECT 28**

SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
158	7/31/91	Marysville	Erie	13-40	Complete backfill, 30' S. of shaft
157	7/3/91	Marysville	Erie	13-40	Before backfill, 30' NE of shaft
158	7/31/91	Marysville	Erie	13-41	Complete backfill, 30' S. of shaft
159	6/3/91	Marysville	Fraction	20-42	Before fence, 10' E. of opening
160	6/14/91	Marysville	Fraction	20-42	Completed fence, 20' W. of opening
161	6/3/91	Marysville	Frame	24-63	Before culvert, 10' N. of adit
162	8/7/91	Marysville	Frame	24-63	Installing culvert, 20' N. of adit
163	9/9/91	Marysville	Frame	24-63	Completed culvert installation, 30' N.
164	6/18/90	Marysville	Frame	24-64	Before culvert, 5' E. of opening
165	9/9/91	Marysville	Frame	24-64	Installing culvert, 20' E. of opening
166	8/7/91	Marysville	Frame	24-64	Completed culvert installation, 15' N.
167	7/2/91	Marysville	Genesee	13-43	Before fence, 10' N. of opening
168	7/12/91	Marysville	Genesee	14-44	Installing fence, 20' S. of opening
169	7/24/91	Marysville	Genesee	14-44	Complete fence, 20' W. of opening
170	7/2/91	Marysville	Genesee	13-43	Before fence, 10' N. of opening
171	7/22/91	Marysville	Genesee	14-45	Complete fence, 30' N. of opening
172	7/2/91	Marysville	Genesee	14-46	Before fence, 15' W. of shaft
173	7/22/91	Marysville	Genesee	14-46	Complete fence, 20' W. of shaft
174	6/21/91	Marysville	Griff	13-49	Before fence, 15' NE of shaft
175	7/24/91	Marysville	Griff	15-47	Complete fence, 10' E. of shaft
176	7/2/91	Marysville	Kenawa	18-48	Before fence, 5' N. of opening
177	7/22/91	Marysville	Kenawa	18-48	Complete fence, 15' N. of opening
178	6/19/91	Marysville	Kenawa	18-49	Before grate, 10' W. of shaft
179	6/28/91	Marysville	Kenawa	13-49	Complete grate, 5' W. of shaft
180	6/21/91	Marysville	Larson	41-51	Before fence, 15' SE of shaft
181	8/2/91	Marysville	Larson	19-50	Complete fence, 20' W. of opening
182	8/6/91	Marysville	Last Hope	41-51	Before culvert, 15' N. of adit
183	6/3/91	Marysville	Last Hope	41-51	Before culvert, 20' N. of opening
184	8/7/91	Marysville	Last Hope	41-51	Installing culvert, 20' N. of adit
185	7/8/91	Marysville	Little Giant	21-52	Before fence, 10' SE of shaft
186	8/2/91	Marysville	Little Giant	21-52	Complete fence, 40' N. of shaft

**PHOTOGRAPHIC RECORD
HMO PROJECT 28**

SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
187	7/3/91	Marysville	NW NE Sec. 27	22-53	Before adit gate, 20' S. of adit
188	9/10/91	Marysville	NW NE Sec. 27	22-53	Installing adit gate, 10' S. of adit
189	9/10/91	Marysville	NW NE Sec. 27	22-53	Installing adit gate, 10' S. of adit
190	9/10/91	Marysville	NW NE Sec. 27	22-53	Installing adit gate, 10' S. of adit
191	9/10/91	Marysville	NW NE Sec. 27	22-53	Complete adit gate, 10' S. of adit
192	7/8/91	Marysville	NW NE Sec. 27	22-56	Before culvert, 15' S. of adit
193	7/30/91	Marysville	NW NE Sec. 27	22-56	Installing culvert, 10' S. of adit
194	7/30/91	Marysville	NW NE Sec. 27	22-56	Installing culvert, 10' S. of adit
195	7/30/91	Marysville	NW NE Sec. 27	22-56	Complete culvert installation, 10' S.
196	7/8/91	Marysville	NW NW Sec. 11	44-58	Before fence, 10' N. of shaft
197	8/12/91	Marysville	NW NW Sec. 11	44-58	Rattlesnake during installation, 20 NW
198	8/14/91	Marysville	NW NW Sec. 11	44-58	Complete fence, 30' N. of shaft
199	6/18/90	Marysville	Nine Hour	16-59 16-60	Before fence, 5' E. of openings
200	8/5/91	Marysville	Nine Hour	16-59 16-60	Completed fence, 30' N. of opening
201	6/24/91	Marysville	North Star	3-21	Before backfill, 15' N. of adit
202	6/27/91	Marysville	North Star	3-21	Complete backfill, 15' N. of adit
203	6/24/91	Marysville	North Star	3-22 3-23	Before backfill, 15' N. of opening
204	6/27/91	Marysville	North Star	3-22 3-23	Backfilling openings, 20' N. of openings
205	6/28/91	Marysville	North Star	3-22 3-23	Complete backfill, 50' N. of openings
206	8/2/91	Marysville	North Star	3-22 3-23	Seeded area, 50' W. of openings
207	6/24/91	Marysville	North Star	3-21	Before backfill, 10' E. of shaft
208	6/28/91	Marysville	North Star	3-24	Backfilling shaft, 5' W. of shaft
209	8/2/91	Marysville	North Star	3-24	Seeded area, 10' W. of shaft
210	6/24/91	Marysville	North Star	3-25	Before fence, 10' NE of shaft
211	7/15/91	Marysville	North Star	3-25	Complete fence, 20' S. of shaft
212	7/8/91	Marysville	Old Empire	23-61	Before backfill, 15' S. of openings
213	8/1/91	Marysville	Old Empire	23-61	Complete backfill, 30' W. of opening
214	8/1/91	Marysville	Old Empire	23-61	Complete backfill, 10' S. of opening

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SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
215	7/8/91	Marysville	Old Empire	23-62	Before backfill, 15' N. of opening
216	8/1/91	Marysville	Old Empire	23-62	Complete backfill, 10' S. of opening
217	8/8/91	Marysville	Point Hope	35-34	Before culvert, 20' N. of adit
218	8/6/91	Marysville	Point Hope	35-34	Installing culvert, 20' N. of adit
219	7/1/91	Marysville	Robert Emmet	25-63	Before fence, 10' W. of opening
220	7/1/91	Marysville	Robert Emmet	25-64	Before culvert, 10' S. of adit
221	8/8/91	Marysville	Robert Emmet	25-64	Transporting culvert with ATV, 50' S.
222	8/6/91	Marysville	Robert Emmet	25-64	Installing culvert, 5' W. of adit
223	6/25/91	Marysville	Robert Emmet	25-65	Before culvert, 30' W. of adit
227	6/26/91	Marysville	Robert Emmet	25-65	Installing drainpipe, 20' W. of adit
225	6/26/91	Marysville	Robert Emmet	25-65	Installing culvert, 20' W. of adit
228	7/1/91	Marysville	Robert Emmet	25-65	Complete culvert installation, 35' W.
227	6/20/91	Marysville	Rosebud	26-66	Before backfill, 50' NE of shaft
228	6/20/91	Marysville	Rosebud	26-66	Backfilling shaft, 15' N. of shaft
229	6/20/91	Marysville	Rosebud	26-66	Complete backfill, 15' N. of shaft
230	7/8/91	Marysville	Rosebud	26-66	Seeded area, 20' N. of shaft
241	8/8/91	Marysville	SE NE Sec. 10	45-69	Before fence, 10' E. of shaft
232	8/8/91	Marysville	SE NE Sec. 10	45-68	Drilling holes for corner posts, 15' E.
233	8/13/91	Marysville	SE NE Sec. 10	45-68	Completed fence, 40' N. of shaft
234	8/8/91	Marysville	SE NE Sec. 10	45-69	Before blast, 10' S. of adit
235	8/13/91	Marysville	SE NE Sec. 10	45-69	Complete blast, 10' S. of adit
236	8/13/91	Marysville	SE NE Sec. 10	45-70	Complete fence, 100' W. of opening
237	6/23/90	Marysville	SE SE Sec. 10	45-71	Before blast, 10' S. of opening
238	9/6/91	Marysville	SE SE Sec. 10	45-71	Before blast, inside adit
239	8/6/91	Marysville	SE SE Sec. 10	45-71	Before blast, inside adit
240	9/6/91	Marysville	SE SE Sec. 10	45-71	After first blast, 20' S. of opening
241	8/8/91	Marysville	SE SE Sec. 10	45-71	After second blast, 20' S. of opening
242	8/6/91	Marysville	SE SE Sec. 10	45-71	After third blast, 20' S. of opening
243	9/6/91	Marysville	SE SE Sec. 10	45-71	Completed blast, 5' S. of opening
244	9/10/91	Marysville	SE NE Sec. 10	45-71	Complete blast, 10' S. of adit
245	8/8/91	Marysville	SE NE Sec. 10	45-72	Before grate, 5' E. of shaft

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SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
246	8/13/91	Marysville	SE NE Sec. 10	45-72	Complete grate, 10' N. of shaft
247	7/3/91	Marysville	SE NE Sec. 27	47-74	Before culvert, 20' NE of adit
248	8/2/91	Marysville	SE NE Sec. 27	47-73	Complete culvert, 10' N. of adit
249	7/3/91	Marysville	SE NE Sec. 27	47-74	Before blast, 30' N. of adit
250	8/2/91	Marysville	SE NE Sec. 27	47-74	Complete blast, 15' N. of adit
251	9/4/91	Marysville	SE SE Sec. 29	42-75	Before backfill, 5' S. of adit
252	8/2/91	Marysville	SE SE Sec. 29	42-75	Complete backfill, 5' S. of adit
253	7/3/91	Marysville	SE SW Sec. 33	27-76	Before backfill, 10' N. of shaft
254	8/1/91	Marysville	SE SW Sec. 33	27-76	Backfilling shaft, 15' S. of shaft
255	8/1/91	Marysville	SE SW Sec. 33	27-76	Complete backfill, 10' S. of shaft
256	6/27/91	Marysville	SE SW Sec. 36	28-77	Before backfill, 40' W. of opening
257	7/1/91	Marysville	SE SW Sec. 36	28-77	Backfilling adit, 50' W. of adit
258	7/8/91	Marysville	SE SW Sec. 36	28-77	Complete backfill, 20' W. of adit
259	6/27/91	Marysville	SE SW Sec. 36	28-78	Before backfill, 20' W. of opening
260	7/1/91	Marysville	SE SW Sec. 36	28-78	Complete backfill, 10' W. of adit
261	7/8/91	Marysville	SE SW Sec. 36	28-77	Seeded area, 15' W. of adit
262	8/1/91	Marysville	Shannon	30-96	Before backfill, 40' E. of shaft
263	9/4/91	Marysville	Shannon	30-96	Backfilling shaft, 50' S. of shaft
264	8/2/91	Marysville	Shannon	30-96	Complete backfill and seeded area, 50' S.
265	7/16/91	Marysville	SW NE Sec. 10	29-79	Before fence, 10' E. of opening
266	7/31/91	Marysville	SW NE Sec. 10	28-77	Complete fence, 30' W. of opening
267	8/14/91	Marysville	SW SW Sec. 10	30-96	Before fence, 20' N. of opening
268	8/14/91	Marysville	SW SW Sec. 10	46-80	Transporting concrete for corner posts
269	8/14/91	Marysville	SW SW Sec. 10	46-80	Complete fence, 70' W. of opening
270	8/7/91	Marysville	SW SW Sec. 30	43-81	Before cable net, 5' S. of adit
271	9/4/91	Marysville	SW SW Sec. 30	43-81	Installing cable net, 10' S. of adit
272	9/4/91	Marysville	SW SW Sec. 30	43-81	Completed cable net, 10' S. of adit
273	6/20/91	Marysville	Snowbird	34-83	Before grate, 25' S. of opening
274	6/21/91	Marysville	Snowbird	34-83	Installing grate, 50' S. of opening
275	6/21/91	Marysville	Snowbird	34-83	Assembling grate, 20' S. of opening
276	6/28/91	Marysville	Snowbird	34-83	Installing grate, 30' S. of opening

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SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
278	6/28/91	Marysville	Snowbird	34-83	Completed grate installation, 30' S.
278	6/19/91	Marysville	Strawberry	17-92	Before backfill, 50' E. of adit
278	6/19/91	Marysville	Strawberry	17-92	Backfilling adit, 50' E. of adit
280	6/19/91	Marysville	Strawberry	17-92	Complete backfill, 50' E. of adit
281	7/1/91	Marysville	Strawberry	17-92	Seeded area, 50' E. of adit
282	6/19/90	Marysville	Strawberry	17-93	Before blast, 40' S. of opening
283	7/1/91	Marysville	Strawberry	17-93	Complete blast, 15' E. of adit
284	6/19/91	Marysville	Strawberry	17-94	Before backfill, 10' E. opening
285	6/19/91	Marysville	Strawberry	17-94	Backfilling shaft, 15' W. of shaft
286	6/19/91	Marysville	Strawberry	17-94	Complete backfill, 15' W. of opening
287	7/1/91	Marysville	Strawberry	17-94	Seeded area, 10' E. of opening
288	6/19/91	Marysville	Strawberry	17-95	Before backfill, 20' NE of shaft
289	6/19/91	Marysville	Strawberry	17-95	Complete backfill, 20' E. of opening
290	7/1/91	Marysville	Strawberry	17-95	Seeded area, 20' E. of opening
291	6/19/91	Marysville	Strawberry	17-99	Before backfill, 15' NE of opening
292	6/19/91	Marysville	Strawberry	17-94	Backfilling shaft, 20' N. of opening
293	6/19/91	Marysville	Strawberry	17-95	Complete backfill, 30' S. of opening
294	7/1/91	Marysville	Strawberry	17-94	Seeded area, 10' SE of opening
295	8/1/91	Marysville	Strawberry	17-94	Seeded area, 60' E. of opening
296	7/17/91	Marysville	Tyson	36-85	Before fence, 10' W. of opening
297	7/17/91	Marysville	Tyson	36-85	Installing fence, 20' N. of opening
298	7/17/91	Marysville	Tyson	36-85	Installing fence, 20' N. of opening
299	7/17/91	Marysville	Tyson	36-85	Installing fence, 40' W. of opening
300	7/17/91	Marysville	Tyson	36-85	Completed fence, 40' S. of opening
301	8/1/91	Marysville	Vestal	37-86	Before fence, 10' S. of opening
302	8/2/91	Marysville	Vestal	37-86	Complete fence, 20' E. of opening
303 304	7/8/91	Marysville	Whipperwill	38-87 38-88	Before fence, 10' SE and 10' NE of opening
305	7/25/91	Marysville	Whipperwill	38-87 38-88	Installing delineator posts, 20' E. of opening
306	8/2/91	Marysville	Whipperwill	38-87 38-88	Complete fence w/delineator posts, 50' E. of opening
307	7/23/91	Marysville	Z-G #18	48-67	Before fence, 10' E. of shaft

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SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
310	7/31/91	Marysville	Z-G #18	48-67	Complete fence, 20' N. of opening
309	7/23/91	Marysville	Z-G #18	48-67	Before fence, 10' S. of opening
310	7/30/91	Marysville	Z-G #18	48-90	Complete fence, 20' W. of opening
311	6/15/90	Marysville	Z-G #18	48-90	Before culvert, 10' N. of opening
312	7/30/91	Marysville	Z-G #18	48-90	Installing culvert, 10' N. of opening
314	7/30/91	Marysville	Z-G #18	48-90	Installing culvert, 10' N. of adit
314	7/30/91	Marysville	Z-G #18	48-90	Complete culvert installation, 10' N.
315	6/15/90	Marysville	Z-G #18	48-91	Before blast, 20' N. of opening
316	7/30/91	Marysville	Z-G #18	48-91	Complete blast, 20' N. of opening

